United Nations A/58/65

General Assembly

Distr.: General
3 March 2003
Original: English

Fifty-eighth session
Item 53 of the preliminary list*
Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General**

Summary

The present report has been prepared in response to the request of the General Assembly, in paragraph 73, of its resolution 57/141 of 12 December 2002, for the Secretary-General to present at the fifty-eighth session his annual comprehensive report on developments and issues relating to oceans and the law of the sea. It will be presented as a basis for discussion to the fourth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, established by the General Assembly in its resolution 54/33 of 24 November 1999 and renewed for three years in resolution 57/141, in order to facilitate the annual review of developments in ocean affairs. The fourth meeting, as decided by the General Assembly, will focus on the protection of vulnerable marine ecosystems and on the safety of navigation, for example, capacity-building for the production of nautical charts. The report also contains information on the status of the United Nations Convention on the Law of the Sea and its implementing Agreements, and declarations and statements made by States under articles 310, 287 and 298 of the Convention. Furthermore, it elaborates on developments regarding the protection of the marine environment and the safety of navigation, in particular in relation to the aftermath of the *Prestige* incident in 2002. Finally, it addresses the establishment of a mechanism for inter-agency coordination and cooperation. The report identifies two main challenges for the future: to ensure that States comply fully with their obligations under the law of the sea, and that inter-agency cooperation is facilitated and enhanced.

* A/58/50.

** Due to the page limit, this report contains a mere summary of the most important recent developments and selected parts of contributions by major agencies, programmes and bodies. The full texts of all contributions are posted on the web site of the Division for Ocean Affairs and the Law of the Sea: www.un.org/Depts/los. Furthermore, some traditional subjects have been omitted for lack of space.

03-26668 (E) 160503

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Abbreviations

CARICOM	Caribbean Community
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COFI	FAO Committee on Fisheries
GEF	Global Environment Facility
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
HELCOM	Baltic Marine Environment Protection Commission (Helsinki Commission)
IAEA	International Atomic Energy Agency
ICCAT	International Commission for the Conservation of Atlantic Tunas
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INF Code	International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships
IOC	Intergovernmental Oceanographic Commission (UNESCO)
ISM Code	International Safety Management Code
IUCN	International Union for the Conservation of Nature and Natural Resources — World Conservation Union
IUU fishing	illegal, unreported and unregulated fishing
MEPC	IMO Marine Environment Protection Committee
MSC	IMO Maritime Safety Committee
OECD	Organisation for Economic Cooperation and Development
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic
PERSGA	Regional Organization for the Conservation of the Red Sea and the Gulf of Aden
SADC	Southern African Development Community
SAR Convention	International Convention on Maritime Search and Rescue
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice (Conference of Parties to the Convention on Biological Diversity)

SOLAS	International Convention for the Safety of Life at Sea
STCW Convention	1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
STCW-F	1995 International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel
SUA Convention	1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization

I. Overview: International oceans governance: Developments towards an integrated approach

1. The year 2002 was a landmark year for the oceans, for several reasons. First, it was the twentieth anniversary of the opening for signature of the United Nations Convention on the Law of the Sea (UNCLOS), which was celebrated during a two-day meeting of the General Assembly.[1] Secondly, it marked a considerable advance in oceans governance, in that developments in various forums fed into each other in a kind of "virtuous circle" of international meetings culminating first in the World Summit on Sustainable Development (Johannesburg, South Africa) and then in the General Assembly debates and resolutions that set the course for future cooperation in ocean affairs at all levels.

2. In recent years, the law of the sea and ocean affairs have been somewhat neglected in a common but erroneous belief that everything was settled with the adoption of the Convention in 1982. Doubtless, that was one of the reasons why the oceans were originally not on the agenda for the World Summit on Sustainable Development. Nevertheless, the persistent efforts of all interested groups, beginning with the Global Conference on Oceans and Coasts at Rio+10, persuaded the preparatory meetings for the Johannesburg Conference that not only was UNCLOS not the end of the road, but also that many of the commitments of the UNCED at Rio remained unfulfilled.

3. Indeed, although a vast array of instruments relating to the oceans, both binding and non-binding, have been adopted since 1982 and 1992, much remains to be done. For all this impressive legislation is not being sufficiently implemented and enforced. The evidence is clear in the continuing depletion of the world's fish stocks and the increasing degradation of the marine environment, with their disastrous economic and social repercussions. These facts were shockingly brought to the forefront of public and political awareness by the catastrophic consequences of the sinking of the oil tanker *Prestige* off the coast of Spain.

4. A number of recent accidents have made clear not only that certain flag States were not fulfilling their obligations under UNCLOS, but also that if the international community did not respond in an appropriate manner to ensure implementation of those obligations and to enhance cooperation among States and intergovernmental organizations, then States and regional organizations might take unilateral action that would threaten the integrity of the Convention and its continued viability.

5. On the other hand, there were positive signs of increased awareness of the problems facing the oceans and efforts at international cooperation to resolve them. States realized that in attempting to address the issues, it is first necessary to collect and analyse information concerning the current state of the oceans. Although many groups and organizations have been doing this partially and independently, a truly regular comprehensive and in-depth approach has been lacking. In 2002, concrete steps towards a global marine assessment were taken at a Workshop organized by the United Nations Environment Programme (UNEP), the third meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, the World Summit on Sustainable Development and, finally the General Assembly. The Division for Ocean Affairs and the Law of the Sea is coordinating the process on behalf of the Secretary-General.

6. At the same time, in response to a request from a number of NGOs, the Secretary-General, through the Division for Ocean Affairs and the Law of the Sea, is consulting a number of relevant agencies and organizations on the possibility of establishing an inter-agency task force to study the "root causes" of the *Prestige* disaster. In response to a General Assembly request, the Secretary-General is also considering possibilities for the establishment of a new inter-agency mechanism for cooperation and coordination to deal with all aspects of ocean affairs.

7. This brings us back to international oceans governance and the current interaction among various intergovernmental bodies. While the General Assembly exercises a general oversight function with respect to oceans and the law of the sea, in view of the limited time available in its crowded agenda, three years ago the General Assembly created a new forum for discussion in the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea. For a week each spring, the Process meets for a comprehensive exchange on the basis of the annual report of the Secretary-General, but with a particular focus on two issues. The meetings are informal, with participation by representatives from States parties to UNCLOS, non-States parties, intergovernmental organizations and non-governmental organizations. In addition to feeding directly into the annual debate and resolution in the General Assembly, the outcomes of the Consultative Process also exercise considerable influence on subsequent meetings in a variety of forums. In 2002, the General Assembly reviewed the usefulness of the Consultative Process and renewed its mandate for a further three years.

8. As noted above, in 2002, different institutions, meetings and actors worked together to reach certain common goals. One of those goals was the inclusion of ocean affairs in the Plan of Implementation of the World Summit on Sustainable Development. In November 2001, the General Assembly recommended that, in view of the forthcoming World Summit on Sustainable Development, the Consultative Process should discuss the issues of: (a) protection and preservation of the marine environment; and (b) capacity-building, regional cooperation and coordination, and integrated ocean management.[2] Shortly thereafter, the deliberations and outcomes of the Global Conference on Oceans and Coasts at Rio+10,[3] organized jointly by NGOs and the Intergovernmental Oceanographic Commission (IOC), were presented to the second meeting of the Preparatory Committee for the World Summit on Sustainable Development. This raised the awareness of the Committee of the importance of the oceans. Although initially oceans issues had been omitted from the Summit agenda, it was now decided to include them.[4] Next, at the April 2002 meeting of the Consultative Process, delegations decided to forward the report of the Process[5] to the fourth meeting of the Preparatory Committee.

9. This process of coordination and cooperation among all relevant actors led to the inclusion in the Johannesburg Plan of Implementation of chapter IV, paras. 30-36, on oceans, seas, islands and coastal areas, as well as chapter VII on small island developing States.[6] Together with chapter 17 of Agenda 21, the Johannesburg Plan of Implementation now establishes the programme of action for the implementation of the legal framework of principles and rules in UNCLOS. This was evident in the extensive reference to the recommendations of the Summit in the resolution on oceans and the law of the sea adopted by the General Assembly in December 2002.

10. This is but one example of the successful operation of the current, somewhat decentralized system of international oceans governance. Some decentralization is

inevitable, as oceans affairs are addressed in many different organizations and forums. As the following pages demonstrate, there is considerable cooperation among various agencies dealing with aspects of ocean issues, for example, in relation to the rescue of persons at sea. In recent years, progress has been made in oceans governance and integrated management, albeit perhaps too slowly to save depleted fisheries and vulnerable marine ecosystems.

II. The United Nations Convention on the Law of the Sea and its implementing Agreements[7]

A. Status of the Convention and its implementing Agreements

11. Since the issuance of the last report, Armenia, Kiribati, Qatar and Tuvalu deposited their instruments of ratification or accession to UNCLOS, and Cuba and Tunisia deposited their instruments of ratification of or accession to the Part XI Agreement, thus increasing the number of parties to UNCLOS to 142 and to the Agreement to 112. In addition, Ecuador, Morocco and Peru announced their intention to become parties. The General Assembly reaffirmed its determination to pursue the goal of achieving universal participation, and called upon all States that had not done so to become parties to UNCLOS and to the two implementing Agreements (resolution 57/141, para. 1). Of 152 coastal States, 27 States (18 per cent) have yet to express their consent to be bound by the Convention. Twenty-five out of 42 landlocked States are not yet parties to the Convention.

12. The 1995 Agreement for the implementation of the provisions of UNCLOS relating to the conservation and management of straddling fish stocks and highly migratory fish stocks ("United Nations Fish Stocks Agreement") entered into force on 11 December 2001. There are now 34 parties to the Agreement. In consequence, the geographical scope of application of the Agreement for those parties covers substantial areas of the sea in the South Pacific, the North-West and South-West Atlantic, the northern part of the North Pacific Ocean, as well as the Arctic Ocean.

B. Declarations and statements under articles 310, 287 and 298 of UNCLOS

13. In the 2002 debate on oceans and the law of the sea, the European Union once more expressed its concern that some States had made declarations that appeared to be reservations excluding or modifying the legal effect of certain provisions of the Convention, noting that such declarations could not have any legal effect. In paragraph 3 of its resolution 57/141 of 12 December 2002, the General Assembly called once again upon States to ensure that any declarations or statements that they had made or would make when signing, ratifying or acceding to the Convention were in conformity therewith and, otherwise, to withdraw any of their declarations or statements not in conformity.

14. Article 287 of UNCLOS allows States to choose, by means of a written declaration, one or more specific means for the settlement of disputes concerning the interpretation or application of the Convention. Mexico declared in 2002 that it had chosen, in no order of preference: (a) the International Tribunal for the Law of

the Sea established in accordance with annex VI; (b) the International Court of Justice; and (c) a special arbitral tribunal constituted in accordance with annex VIII. Mexico also declared that, pursuant to article 298 of the Convention, it did not accept the procedures provided for in part XV, section 2, with respect to the following categories of disputes: (a) disputes relating to sea boundary delimitations, or those involving historic bays or titles, pursuant to paragraph 1 (a) of article 298; and (b) disputes concerning paragraph 1 (b) of article 298.[8]

III. Maritime space

A. The continental shelf beyond 200 nautical miles: the work of the Commission on the Limits of the Continental Shelf

15. *Work of the Commission on the Limits of the Continental Shelf.* The eleventh session of the Commission was held from 24 to 28 June 2002.[9] Two sessions are scheduled to be held in 2003, the twelfth session from 28 April to 2 May 2003, and the thirteenth from 25 to 29 August 2003. If a submission is made at least three months before the August session, it will be followed by a two-week session of the subcommission.

Trust funds related to submissions to the Commission and to participation of Commission members from developing countries in its sessions

16. In 2002, seven requests were approved from developing States for reimbursement from the Trust Fund for preparation of submissions to the Commission, for expenses connected with attendance at a training course offered by Southampton Oceanography Centre, based on the outline for a five-day training course designed by the Commission for the delineation of the outer limits of the continental shelf beyond 200 nautical miles and for the preparation of a submission of a coastal State to the Commission (CLCS/24). As of December 2002, the Fund contained US$ 1,039,972, from contributions of over $1 million made by Norway in 2000, and a contribution from Ireland at the end of 2002 of 90,000 euros, to be received in three instalments.[10] In its resolution 55/7 of 30 October 2000, the General Assembly also created a trust fund to defray the cost of participation of the members of the Commission from developing States in the meetings of the Commission. At the end of 2002, Ireland had contributed 50,000 euros to the Fund, and Norway 500,000 Norwegian kroner.

B. The Area: the work of the International Seabed Authority

17. The International Seabed Authority was established by the Convention to organize and control activities directed at natural resources in the seabed area beyond the limits of national jurisdiction (the Area). The Authority held its eighth session at Kingston, Jamaica, in August 2002. Among the most important substantive matters discussed during the session was the first set of annual reports of the seven contractors for exploration for polymetallic nodules, and proposals for regulations for prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts.

18. A one-day seminar, open to all members and observers, was held on the prospects for hydrothermal polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area. Marine geologists and biologists presented their latest findings on the status and characteristics of deep-sea polymetallic sulphides and cobalt-rich ferromanganese crusts, as well as the surrounding marine environment.[11] Many of the hydrothermal vent sites targeted by scientific researchers and bioprospectors are also of considerable interest to prospective seabed miners, thus giving rise to the possibility of a conflict between the Authority's responsibilities in respect of the marine environment and activities directed at bioprospecting.

19. With respect to the development of regulations for prospecting and exploration relating to polymetallic sulphides and cobalt-rich ferromanganese crusts, the Council of the Authority noted the need for a flexible approach to these regulations, particularly in view of the lack of scientific knowledge relating to deep sea ecosystems. It was also clear that polymetallic sulphides and cobalt-rich crusts were different from polymetallic nodules as well as distinct from one another. Particular ecological considerations arose with respect to polymetallic sulphides located at active hydrothermal vents. For these reasons members of the Council were in favour of different sets of regulations for the two resources and proposed taking a cautious approach to their elaboration. At the same time, the Council noted that any regulations must be consistent with the overall scheme contained in the Convention, the Agreement relating to the Implementation of Part XI, and the existing regulations relating to polymetallic nodules. From the point of view of potential investors, the most difficult issues would be how to determine the size of the area for exploration so as to make exploration commercially viable while avoiding monopoly situations. The system for the Area also had to be competitive with regimes established for areas within national jurisdiction.

20. In its resolution 57/141, the General Assembly reiterated the importance of the ongoing elaboration by the Authority, pursuant to article 145 of the Convention, of rules, regulations and procedures to ensure the effective protection of the marine environment, the protection and conservation of the natural resources of the Area and the prevention of damage to its flora and fauna from harmful effects that might arise from activities in the Area.[12]

C. Maritime claims and the delimitation of maritime zones

1. Conference on Maritime Delimitation in the Caribbean

21. The Conference on Maritime Delimitation in the Caribbean, an important regional effort aimed at facilitating the implementation of UNCLOS in the delimitation of maritime boundaries between States, as well as for securing technical assistance, met at its first session in Mexico City from 6 to 8 May 2002. The first session adopted the Rules of the Conference and opened a Registry of Delimitation Negotiations to allow States to register, by mutual agreement, the delimitation negotiations of one or more of their respective maritime zones. The main purpose of the registration process is to place a delimitation negotiation within the context of the Conference and to allow participating States to use the mechanism for technical and financial assistance established by the Rules. The delimitation negotiations are to be carried out exclusively by and between the States concerned, without the intervention of any third parties and in accordance with the terms agreed to by the

States involved. Neither the Plenary nor the Authorities of the Conference, or other Participating States or Observers of the Conference may in any way interfere with these negotiations or make statements with respect to them.

22. In response to the request communicated to the Secretary-General of the United Nations by the Executive Secretary of the Conference, the Division for Ocean Affairs and the Law of the Sea, jointly with the Department of Economic and Social Affairs of the United Nations Secretariat, established a technical cooperation project and trust fund entitled Assistance to States Participants in the Conference on Maritime Delimitation in the Caribbean. The project and the trust fund will enable the United Nations Secretariat to provide institutional support and technical assistance to States Participants in the Conference on Maritime Delimitation in the Caribbean, in order: (a) to facilitate their participation in the plenary meetings; (b) to assist them in covering costs related to their delimitation negotiations registered in the Registry of the Conference; and (c) to ensure that they obtain wider access to the best qualified expert services within the framework of such negotiations or in preparation for them. Mexico contributed $50,000 to the trust fund to make the project operational. In resolution 57/141, the General Assembly also took note of that trust fund and called upon States and others in a position to do so to contribute to it.

2. Other developments

23. Since the issuance of the last report, charts or lists of geographic coordinates, pursuant to the requirement of due publicity, have been deposited by Madagascar, the Netherlands and Norway. The Division for Ocean Affairs and the Law of the Sea publishes descriptions of such deposits periodically in its Law of the Sea Information Circular. In 2002, the General Assembly once again encouraged States parties to the Convention to deposit with the Secretary-General charts and lists of geographical coordinates, as provided for in the Convention.

24. Probably the most important recent event related to national claims was the proclamation by the newly independent Timor-Leste of a 12-nautical-mile territorial sea, a 24-nautical-mile contiguous zone, and a 200-nautical-mile exclusive economic zone, as well as of a continental shelf in the South Pacific. An updated version of the table entitled "Summary of national claims to maritime zones" is available on the Division's web site (www.un.org/Depts/los). It shows that only a few maritime claims are not compatible with the provisions of the 1982 Convention: about nine coastal States[13] still maintain a territorial sea of more than 12 nautical miles, and only one State claims a contiguous zone of more than 24 nautical miles. On the other hand, 111 coastal States have proclaimed exclusive economic zones. Several States are also preparing submissions to the Commission on their continental shelf beyond 200 nautical miles. Despite extensive research, however, information regarding maritime claims may not always reflect the latest developments, owing to the lack of regular updates from Governments.

25. In order to improve information regarding legislative measures undertaken by States parties in implementing UNCLOS, the Division for Ocean Affairs and the Law of the Sea in February 2002 circulated a questionnaire to all States, both parties and non-parties to the Convention, requesting input on the application of the provisions of UNCLOS. As of February 2003, replies had been received from 22 States Parties and two non-parties. Some of the replies also contained texts of

national legislative acts or treaties that have contributed significantly to the development of the collection of national legislation and delimitation treaties, available on the Division's web site. The Division is examining the information received with a view to sharing the results with States as soon as practicable as part of an overall assessment of the implementation of UNCLOS. However, the quality of such assessment depends upon the replies received. In order to produce any meaningful analysis, many additional responses are required.

26. Several agreements and other developments regarding the delimitation of maritime boundaries and related issues have been reported in Africa, Asia, the South Pacific, Europe and Latin America.[14]

27. During the fifty-seventh regular session of the General Assembly, some delegations referred to the signing by countries members of the Association of South-East Asian Nations (ASEAN) and China, during the eighth ASEAN summit, of a Declaration on the Conduct of Parties in the South China Sea, which was considered a step towards a code of conduct in the South China Sea as a basis for a durable solution to the disputes in the area. In January 2002, the Islamic Republic of Iran sent a note to Kuwait protesting the July 2000 Agreement between Saudi Arabia and Kuwait concerning the submerged zone adjacent to the divided zone.

28. In Europe, the Agreement between the Government of the Republic of Finland, the Government of the Republic of Estonia and the Government of the Kingdom of Sweden on the Common Maritime Boundary Point in the Baltic Sea was concluded on 16 January 2001.

29. In Latin America, a negotiation process under the auspices of the Organization of American States was carried out to settle the territorial dispute between Guatemala and Belize. Honduras stated that it had held advanced discussions with Cuba and preliminary contacts with Mexico on the subject of maritime delimitation, within the framework of the Conference on Maritime Delimitation in the Caribbean. Several communications were received from Honduras and Nicaragua concerning hydrocarbon leases and exploration in both disputed areas in the Caribbean Sea and in the Gulf of Fonseca and the Pacific Ocean.

30. In response to the statement by Peru concerning the 18°21'00" parallel, Chile, on 15 March 2002, made a statement on its maritime boundary with Peru, referring to international instruments agreed upon jointly with Ecuador: Declaration on the Maritime Zone or Declaration of Santiago, of 18 August 1952, Agreement on the Special Maritime Boundary Zone, signed at Lima on 4 December 1954, and Additional Clarification, Lima, 4 December 1954, stating that the maritime boundary between Chile and Peru had been clearly established in international agreements concluded in full compliance with international law, and dismissed the statement by Peru "as lacking any basis".

31. In response to the communication by Guyana concerning the Treaty on Delimitation of Marine and Submarine Areas between Trinidad and Tobago and Venezuela of 18 April 1990, Trinidad and Tobago addressed a note to Guyana in which it advised that the Treaty had been negotiated and concluded in accordance with customary international law and UNCLOS. During the General Assembly debate, Trinidad and Tobago announced that it was seeking to complete its maritime boundary negotiations with Barbados and to resume a similar process in respect of its maritime boundary with Grenada. Mexico announced that it had registered,

within the framework of the Conference on Maritime Delimitation in the Caribbean, delimitation negotiations with Belize.

D. Access to and from the sea by landlocked developing countries and freedom of transit

32. Serious constraints on the overall socio-economic development of landlocked developing countries, owing to the lack of territorial access to the sea, remoteness and isolation from world markets and high transit costs, and related special needs of landlocked developing countries have been addressed most recently in the report of the Secretary-General entitled "Specific actions related to the particular needs and problems of landlocked developing countries: preparatory process for the International Ministerial Meeting on Transit Transport Cooperation" (A/57/340). The General Assembly at its fifty-seventh session accepted the offer of Kazakhstan to host the International Ministerial Conference of Landlocked and Transit Developing Countries and Donor Countries and International Financial and Development Institutions on Transit Transport Cooperation at Almaty in August 2003.

IV. Safety of navigation

33. *Overview of the legal regime in UNCLOS.* UNCLOS balances the right of the flag State to exercise rights of navigation with its duty to ensure that any ships flying its flag are safe for navigation. Article 94 enumerates several measures which the flag State is required to take in order to ensure safety at sea. Ships must be constructed and equipped in conformity with generally accepted international regulations, procedures and practices and be seaworthy. Each ship must be surveyed by a qualified surveyor before registration and at appropriate intervals thereafter. It must have on board such charts, nautical publications and navigational equipment and instruments as are appropriate for the safe navigation of the ship. With respect to manning, labour conditions and the training of crews, the flag State must ensure that its measures conform to generally accepted international regulations, procedures and practices. The master, officers and crew must be fully conversant with and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of radio communications.

34. Furthermore, articles 194 (3) (b) and 217 (2) require flag States to ensure that their ships conform to rules protecting and preserving the marine environment. The flag State also has the responsibility to ensure that its ships are not used for illicit purposes and obey any rules on maritime security. Given the global mandate of the International Maritime Organization (IMO) in the field of safety of navigation and the prevention of marine pollution from vessels, and most recently also in the field of maritime security, most of the measures required will have been developed by IMO. Measures relating to labour conditions have been adopted by the International Labour Organization (ILO), and the International Atomic Energy Agency (IAEA) has developed measures relating to the transport of nuclear material.

35. While the flag State bears primary responsibility for ensuring safety at sea, the coastal State also has been assigned some responsibility under UNCLOS. Coastal

States must give appropriate publicity to any danger to navigation of which they have knowledge within their territorial sea (article 24 (2)), in archipelagic waters (article 52), in straits used for international navigation (article 44) and within archipelagic sea lanes (article 54). While UNCLOS grants coastal States a discretionary right to establish sea lanes or traffic separation schemes, article 211 does require States to promote the adoption of routeing systems designed to minimize the threat of accidents, which might cause pollution of the marine environment.

36. All these aspects of safety of navigation have been regulated over time within the framework of a number of United Nations organizations, in particular IMO, constituting a comprehensive and substantial body of global rules and regulations. Indeed, many shipping accidents and resulting loss of life and/or pollution are not the result of inadequate regulation at the global level, but are the direct result of ineffective flag State implementation and enforcement. Therefore, the solution to prevention of shipping accidents would appear to lie not in the adoption of more rules, but rather in ensuring that existing rules are effectively enforced. IMO has emphasized that safer shipping demands a safety culture throughout all components of the shipping industry. Full implementation can only be achieved if a proactive safety-oriented attitude is established among all those involved with the operation of ships.[15]

37. However, recent developments demonstrate that some States are no longer willing to leave the responsibility for safe navigation to the flag State alone. An ageing world oil tanker fleet, unsatisfactory ship construction standards, ineffective flag State implementation, the increasing volume of hazardous and dangerous goods being transported by sea, as well as recent oil spills have been cited as some of the reasons why ships should not be able to exercise unconditional rights of navigation and why they should be subjected to more control by the coastal State.

A. Ship construction and equipment

38. The generally accepted international regulations, procedures and practices relating to ship construction, equipment and seaworthiness referred to in articles 94 and 217 of UNCLOS are those contained in IMO instruments, especially the International Convention for the Safety of Life at Sea (SOLAS), the International Convention on Load Lines (LL Convention) and the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). These are considered to be generally accepted because all instruments are adopted by consensus by the 162 IMO members, which represent all regions of the world. Moreover, States parties flag more than 90 per cent of the world's merchant fleet.

39. The timetable for the accelerated progressive phasing out of single-hull tankers, adopted in April 2001 after the *Erika* disaster in the form of revised regulation 13G of annex I of MARPOL 73/78, entered into force on 1 September 2002 together with the associated Condition Assessment Scheme. An electronic database has been set up to contain particulars of the statements of compliance for tankers which have undergone a successful survey.[16] The scheme was amended by the Marine Environmental Protection Committee of IMO at its forty-eighth session (MEPC 48) to include the Model Survey Plan and Mandatory Requirements for the

Safe Conduct of the Condition Assessment Scheme (resolution MEPC.99 (48)).[17] The amendments are expected to enter into force on 1 March 2004.

40. The recent oil spill involving the 26-year-old single-hull vessel *Prestige* which was carrying 77,000 metric tons of heavy fuel oil, has raised grave concerns in a number of coastal States and led to calls for further acceleration of the phasing out of single-hull vessels. The European Commission has launched a number of initiatives in accordance with its "Communication on improving safety at sea in response to the *Prestige* accident" adopted on 3 December 2002 and the Transport Council's conclusions of 6 December 2002. On 20 December 2002, the Commission proposed a new regulation, advancing the calendar for the phasing out of single-hull tankers to ensure that category 1 tankers will not operate beyond 23 years and 2005 or 28 years of age and 2010 for category 2 and 28 years of age, and 2015 for category 3 tankers. The proposed deadline of 2010 for category 2 tankers is the same as that in the United States of America Oil Pollution Act of 1990. The Commission further proposed that the Condition Assessment Scheme should apply from 2005 to all oil tankers over 15 years old, not just those in categories 1 and 2.

41. According to the European Commission, the new regulation would not disrupt oil supply given the current overcapacity in the world tanker fleet and the large number of tankers on order. There would, however, be an economic impact.[18] The Commission has proposed to the European Parliament and the Council that they adopt the new regulation as soon as possible so that it can enter into force in March 2003. The draft regulation refers to article 211, paragraph 3, of UNCLOS. The Commission has called upon member States to ensure that IMO adopts similar measures and that an appropriate inspection scheme, equivalent to the Condition Assessment Scheme, is introduced also for double-hull oil tankers over 15 years old. The Commission has also proposed to prohibit the transport of heavy grades of oil in single-hulled tankers bound for or leaving ports of member States. Spain has already adopted legislation banning such vessels from its ports.

42. The loss of 116 bulk carriers and 618 lives over the past 10 years as well as recent studies on bulk carrier safety have pointed to the need for further measures to improve safety.[19] IMO amended chapter XII of SOLAS in December 2002 to introduce new requirements for the installation of high-level alarms and level monitoring systems on all bulk carriers by 1 July 2004, regardless of their date of construction.[20] As of 1 July 2002, new ships must meet the requirements of revised chapter V of SOLAS regarding the installation of navigational systems and equipment, such as the Global Navigation Satellite System (GNSS), the Electronic Chart Display and Information System (ECDIS), the Automatic Identification System (AIS) and the Voyage Data Recorder (VDR). Furthermore, as a result of amendments adopted at the SOLAS Conference in December 2002, ships of less than 50,000 gross tonnage, other than passenger ships and tankers, will be required to fit AIS at the latest by 31 December 2004.

43. *Ship recycling*. Vessels at the end of their useful lives are sold for scrap on the international market. In 2001, 3.4 per cent of the world's fleet was sent for scrap, representing an increase of 25.2 per cent over the previous year. Most of these were tankers, due to depressed freight revenues and the disposal of some single-hull tankers. There are few alternatives to ship recycling and it is generally considered the best environmental option for all time-expired tonnage. Demand for ship recycling is expected to rise in the near future as single-hull tankers are

progressively being phased out. In ship recycling, virtually nothing goes to waste; if properly handled, ship recycling is a "green" industry. However, while the principle of ship recycling may be sound, the working practices and environmental standards in the yards often leave much to be desired.

44. Draft guidelines being developed by IMO recognize that, while ultimate responsibility for conditions in the yards has to lie with the countries in which they are situated, other stakeholders must be encouraged to contribute towards minimizing potential problems in the yards. IMO has accepted an important role in ship recycling, in the development of measures to prepare a ship for recycling. It also has coordinated activities with ILO and the secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention). The IMO guidelines based on the Industry Code of Practice, which was developed by an Industry Working Party on Ship Recycling, are to be adopted as a resolution by the IMO Assembly in 2003. The guidelines are addressed to all stakeholders in the recycling process, including administrations of shipbuilding and maritime equipment supplying countries, flag, port and recycling States, as well as intergovernmental organizations and commercial entities such as shipowners, shipbuilders, repairers and recycling yards.

45. A key element of the guidelines will be the introduction of the concept of a "Green Passport" for ships containing an inventory of all materials potentially hazardous to human health or the environment used in the construction of a ship and would accompany the ship throughout its working life. Successive owners of the ship would maintain the accuracy of the Green Passport and incorporate into it all relevant design and equipment changes, with the final owner delivering it, with the vessel, to the recycling yard. ILO and the Basel Convention have also been involved in this initiative, together with representatives of the shipping industry and environmental NGOs — an excellent example of inter-agency and stakeholder cooperation.

B. Training of crew and labour conditions

46. Some 80 per cent of marine casualties are estimated to be due in some part to human error. The importance therefore of adequate training and appropriate living and working conditions for seafarers cannot be overstated. The instruments that flag States must take into account when legislating for manning, labour conditions and crew training and practices are in SOLAS (manning requirements), ILO instruments (labour standards) and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (the STCW Convention) (training requirements).

47. IMO has continued to make efforts to ensure that the minimum requirements set out in the 1995 amendments to the 1978 STCW Convention are being implemented. Out of 144 current parties, 108 parties have been confirmed by the Maritime Safety Committee (MSC) to have communicated information demonstrating that they have given full and complete effect to the relevant provisions of STCW.[21] This list will be updated every five years. The six-month grace period beyond the STCW deadline approved by IMO to enable seafarers to obtain the necessary certification elapsed on 1 August 2002. Any seafarers without certificates and documentary evidence attesting compliance with the revised STCW

requirements could face major problems during port State control inspections. IMO has noted that major non-conformities with the International Safety Management (ISM) Code could be raised against a ship and the company in cases where seafarers did not hold the necessary certification in accordance with statutory requirements.

48. The total number of seafarers worldwide is estimated at 1,227,000, comprising 404,000 officers and 823,000 ratings, with a comparatively small number of labour-supplying countries.[22] According to a recent report prepared by ILO, substantial variations in living and working conditions continue to exist between vessels operating under different flags, and there is discrimination against non-domiciled seafarers. While only 28 per cent of open-register countries, which generally tend to employ non-nationals, had national legislation covering non-national seafarers, labour-supplying countries could not provide legal protection for their seafarers working on foreign-flagged vessels. ILO concludes that there is a need for regulation at the national and international levels to be reshaped and better enforced in order to safeguard seafarers. In addition, IMO has noted the lack of national regulations to address enforcement of criminal law on board vessels and is collecting information on current State practice and domestic law.[23]

49. The ILO report was considered at a tripartite[24] Meeting of Experts on Working and Living Conditions of Seafarers on board Ships in International Registers in May 2002. During the discussions, it was pointed out that the requirement for a "genuine link" between the flag State and the ship in article 91 of UNCLOS was fundamental to decent work at sea. Furthermore, flag States failing to provide coverage for non-domiciled seafarers in their national legislation were not discharging their obligations under article 94 of UNCLOS. The experts recognized that consideration should be given to a possible mechanism by which a performance measurement for flag States in respect of ILO instruments might be introduced. In the context of enforcement, they considered that due consideration should be given to the relevant provisions of UNCLOS and the relevant provisions of the ISM Code. The experts stressed the importance of a number of principles and rights, including that: (a) the flag State has the overall responsibility for ensuring that the rights of seafarers are respected in relation to service on board ships flying its flag; (b) every flag State should have in place the means to enforce decent living and working conditions on ships flying its flag wherever they may be in the world; (c) all States shall have in place the necessary mechanisms for monitoring living and working conditions on ships visiting their ports, in accordance with international instruments in force; and (d) all States should provide easy access to simple and inexpensive procedures enabling all seafarers, regardless of nationality and domicile, to make complaints alleging a breach of national legislation on living and working conditions or employment contracts and/or articles of agreement.[25]

C. Transport of goods and passengers

50. Most international trade is carried by sea. More than half of the packaged goods and bulk cargoes transported by sea today can be regarded as dangerous, hazardous or harmful to the environment. The cargoes concerned include products which are transported in bulk, such as solid or liquid chemicals and other materials, gases and products for and of the oil refinery industry and wastes.[26]

1. Regulations governing the transport of dangerous goods

51. The basic feature of all systems of rules to control the transport of dangerous goods has been their grouping on the basis of the hazards presented by the goods during transport. The United Nations Committee of Experts on the Transport of Dangerous Goods has developed and recommended a nine-class substance identification and classification system based on hazardous properties establishing basic requirements for all transport modes. Requirements governing the transport of dangerous goods by sea are contained in SOLAS chapter VII, which requires each Contracting Government to issue, or cause to be issued, detailed instructions on safe packing and stowage of dangerous goods, including the precautions necessary in relation to other cargo. More detailed requirements are set out in the International Maritime Dangerous Goods (IMDG) Code, which applies to all classes of hazardous materials, including radioactive material. Several other IMO codes also deal with the carriage of dangerous goods.[27]

52. SOLAS chapter VII was amended on 24 May 2002 by the Maritime Safety Committee to provide for the mandatory application of the IMDG Code as of 1 January 2004, or on a voluntary basis as from 1 January 2003 (resolution MSC.123(75)). MSC also adopted a new revised text of the code (2000 edition) incorporating amendments adopted by the United Nations Committee of Experts on the Transport of Dangerous Goods in December 2000 (resolution MSC.122(75)). Some provisions of the code will remain recommendatory.[28] Paragraph 1.2.2 of the INF Code now provides that the IMDG Code "shall" apply to the carriage of INF cargo. MSC decided that the revision of SOLAS chapter VII did not entail any consequential amendments to annex III to MARPOL 73/78, apart from updating the footnote referencing the code.

2. Recent developments regarding the transport of dangerous goods

53. *Radioactive materials*. The shipments of mixed oxide fuel between the United Kingdom of Great Britain and Northern Ireland and France and Japan continue to be of great concern to the coastal States along the routes currently used for those shipments. Ministers participating in the Fifth International Conference on the Protection of the North Sea (March 2002) called for further efforts at all levels to examine and improve measures and international regulations relevant to the international maritime transport of radioactive materials consistent with international law, recalling the maritime rights and freedoms provided for in UNCLOS. They agreed to consider the issue of maritime transport of radioactive material at a ministerial meeting on the environmental impacts of shipping to be held in 2006 at the latest. During the May 2002 IMO/UNEP Workshop on Marine Pollution Prevention and Environmental Management in Ports in the Wider Caribbean Region, participants recommended that countries in the wider Caribbean region should be notified in advance of shipments of radioactive materials through the region.[29] At their third summit meeting in July 2002, the heads of State and Government of the African, Caribbean and Pacific (ACP) Group of States expressed their strong objection to the transport of nuclear and other hazardous materials through the waters around ACP States and called for the immediate cessation of such practice in order to prevent any occurrence of accidents that could seriously threaten their sustainable development and the health of their peoples.[30]

54. In August 2002, the Pacific Islands Forum, while noting the reservation of Australia, reiterated its continuing serious concerns over the shipment of radioactive materials through the region; and called on shipping States to meet with Forum members as soon as possible and to mandate their representatives, at a high political level, to seriously consider and progress the proposals that Forum members had developed for innovative arrangements and assurances. Those proposals include acceptance by shipping States of full responsibility and liability for compensation for any damage which may result directly or indirectly from transport of radioactive materials through the region; the assurance by those States that the highest possible safety standards are met; and the appropriate advance notification and consultation by shipping States with States in the region through which the shipments pass, taking into account security considerations and the legitimate interests of Forum member countries.[31]

55. The IAEA General Conference at its forty-sixth session, on 20 September 2002, adopted resolution GC(46)/RES/9 in which, noting its concerns about a potential accident or incident during the transport of radioactive materials by sea and about the importance of the protection of people, human health and the environment, as well as protection from actual economic loss, as defined in relevant international instruments, due to an accident or incident, the Conference recalled maritime, river and air navigation rights and freedoms, as provided for in international law and as reflected in relevant international instruments and recalled the obligation that States have under international law to protect and preserve the marine environment. It urged IAEA member States to ensure that their national regulatory documents governing the transport of radioactive materials were in conformity with the 1996 edition of the Agency's Transport Regulations; and encouraged member States to avail themselves of the Transport Safety Appraisal Service with a view to achieving the highest levels of safety during the transport of radioactive materials. The Conference welcomed the practice of some shipping States and operators of providing in a timely manner information and responses to relevant coastal States in advance of shipments for the purposes of addressing concerns regarding safety and security, including emergency preparedness, and invited others to do so in order to improve mutual understanding and confidence regarding shipments of radioactive materials. Noting that the information and responses provided should in no case be contradictory to the measures of physical protection and safety, the Conference emphasized the importance of maintaining dialogue and consultation aimed at improving mutual understanding, confidence-building and enhanced communication in relation to the safe maritime transport of radioactive materials. The Conference expressed the belief that the principle of strict liability should apply in the event of nuclear damage arising from an accident or incident during the maritime transport of radioactive materials. It stressed the importance of having effective liability mechanisms in place to ensure against harm to human health and the environment, as well as actual economic loss due to an accident or incident during the maritime transport of radioactive materials. It stressed the importance of wide adherence to the international nuclear liability regime established by the Vienna Convention on Civil Liability for Nuclear Damage, as amended in 1997, and the related treaties adopted under IAEA auspices. Finally, the IAEA General Conference urged member States to participate in the 2003 International Conference on the Safety of Transport of Radioactive Material with a view to addressing in a comprehensive way and following up all necessary issues contained in the agreed conference programme. The General Assembly, in its

resolution 57/141, welcomed the adoption of resolution GC(46)/RES/9. The World Summit on Sustainable Development in the Johannesburg Plan of Implementation had recalled paragraph 8 of resolution GC(44)/RES/17 of the IAEA General Conference (see A/56/58, para. 136).

56. *Other dangerous goods*. Strong concerns have also recently been voiced regarding the risk posed by the transport of other dangerous cargo, such as heavy fuel oil. In response to the oil spill from the *Prestige*, the European Commission has proposed a new regulation to prohibit the transport of heavy grades of oil in single-hulled tankers bound for or leaving ports of a State member of the European Union. Some States have already adopted unilateral measures in that regard. Furthermore, the European Transport Council has agreed to reinforce the mechanisms for the control of maritime traffic along the coasts of member States through the establishment, where appropriate and in accordance with international law, of a preventive distance from the coast for ships known to be sub-standard. Furthermore, it has invited member States to adopt measures in compliance with the international law of the sea, which would permit coastal States to control and possibly limit in a non-discriminatory way the transit of vessels carrying dangerous and polluting goods within 200 miles of their coastline, and it has invited the Commission to examine measures to limit the presence of single-hull tankers of more than 15 years of age carrying heavy grades of oil within the exclusive economic zones of member States or, where appropriate and in accordance with international law, within 200 miles of their coastline. However, it is doubtful whether this proposal is in conformity with the law of the sea. At its meeting in December 2002, the European Council agreed that the conclusions of the Transport Council should be implemented in all their aspects without delay.

57. Some European coastal States have already taken unilateral action against single-hull tankers 15 years old or older carrying heavy fuel oils. Spain, France and Portugal have banned such vessels from their exclusive economic zones and have taken measures to enforce the ban. Regrettably, this measure is not in conformity with UNCLOS, article 58. Italy has said that it supports the implementation of measures to force unsafe oil tankers out of the waters close to their countries.[32] Morocco has informed IMO that the entrance of such vessels into its exclusive economic zones is subject to prior notification.[33] During the seventy-sixth session of the Maritime Safety Committee in December 2002, several delegations cautioned against the taking of unilateral measures, emphasizing that measures should be discussed and decided within IMO, which was the competent organization to regulate safety, security and environmental protection matters affecting international shipping.[34]

58. In a letter dated 20 December 2002 addressed to the Secretary-General of the United Nations, the Vice-President of the European Commission stated that many elements of international maritime law and the law of the sea, in their current state, represented the balance of interests as they stood several decades — if not centuries — ago. Many ships currently carried large quantities of hazardous cargoes that might cause ecological disaster for coastal States in case of accident. The Commission and its member States intended to actively promote the re-examination of international rules concerning the law of the sea within the United Nations, IMO and other relevant forums, to adapt its provisions to the new requirements of maritime security in the twenty-first century.[35] However, most recently, in a proposal to be presented to the Marine Environment Protection Committee at its forty-ninth

session (14-18 July 2003), Belgium, France, Ireland, Portugal, Spain and the United Kingdom put forward the designation of a Western European particularly sensitive sea area (MEPC 49/8/1).

59. The General Assembly in its resolution 57/141 noted with deep concern the extremely serious damage of an environmental, social and economic nature brought about by oil spills as a result of recent maritime accidents which had affected several countries, and therefore called upon all States and relevant international organizations to adopt all necessary and appropriate measures in accordance with international law to prevent catastrophes of that kind from occurring in the future.

60. UNCLOS only addresses the carriage of dangerous goods by ships in the territorial sea. Article 22 gives the coastal State the right in its territorial sea to require ships carrying nuclear or other inherently dangerous or noxious substances or materials to confine their passage to such sea lanes, as it may designate, taking into account the recommendations of the competent international organization. Article 23 requires ships carrying nuclear or other inherently dangerous or noxious substances to carry documents and observe special precautionary measures established for such ships by international agreements. Consideration might be given as to whether such precautionary measures have been developed as envisaged in UNCLOS.

61. The transport of dangerous goods is not specifically regulated in the articles dealing with the exclusive economic zone. UNCLOS article 56 gives coastal States jurisdiction with regard to the protection and preservation of the marine environment in the exclusive economic zone, while article 58 provides that all States enjoy freedom of navigation. In exercising their rights of navigation States must have due regard to the rights and duties of coastal States and must comply with the laws and regulations adopted by the coastal State in accordance with the provisions of UNCLOS and other rules of international law insofar as they are not incompatible with Part V of UNCLOS. However, article 211, paragraph 6, permits the coastal State to adopt for a clearly defined area of its exclusive economic zone measures, including navigational practices, more stringent than what is provided by the generally accepted international rules and standards for the prevention, reduction and control of pollution of the marine environment from vessels if, because of its oceanographical and ecological conditions, as well as the utilization or the protection of its resources and the particular character of its traffic, it requires special mandatory measures.

3. Transport of passengers and claims

62. A new legal instrument to provide compensation for injuries to and/or the death of ships' passengers was adopted by IMO in November 2002 in a Protocol to amend the Athens Convention Relating to the Carriage of Passengers and their Luggage by Sea, 1974. The new instrument provides for adequate compensation for death and personal injury claims and claims for loss of or damage to luggage and vehicles. As well as raising limits of liability for passenger claims, the Protocol replaces the fault-based liability system with a strict liability system for shipping-related incidents, up to a limit not less than 250,000 SDR. If the loss exceeds the limit, the carrier is further liable, up to a limit of 400,000 SDR per passenger, unless the carrier proves that the incident occurred without the fault or neglect of the carrier.

D. Routeing and nautical charts

1. Safe routes for navigation

63. Safe routes for navigation are of essential importance for the safety of navigation and the prevention of marine pollution. IMO is recognized as the only international body responsible for establishing and adopting measures on an international level concerning ship routeing systems for use by all ships, certain categories of ships or ships carrying certain cargoes, under SOLAS chapter V and the IMO General Provisions on Ships' Routeing (IMO Assembly resolution A.572(14), as amended). SOLAS revised chapter V entered into force on 1 July 2002; the regulations on ship routeing, ship reporting and vessel traffic services were not revised, only renumbered. Also relevant for safe navigation are rules 1 (d) and 10 of the International Regulations for Preventing Collisions at Sea (COLREG), which define, respectively, the competence of IMO to adopt traffic separation schemes and the main technical regulations to be followed in this regard. It is also of crucial importance that routes are safe from criminal activities (see section V of the present report).

64. *Archipelagic sea lanes*. Indonesia informed IMO that by Regulation No. 37, Year 2002, entitled "Rights and Obligations of Foreign Ships and Aircraft Conducting the Rights of Archipelagic Sea Lane Passage", promulgated by the Government of Indonesia on 28 June 2002 and effective on 28 December 2002,[36] it had designated some of the archipelagic sea lanes (except the sea lane in the Leti Strait and in part of the Ombai Strait in the maritime area between the Republic of Indonesia and the Democratic Republic of Timor-Leste) pursuant to the partial system of archipelagic sea lanes in Indonesian waters adopted by IMO in 1998 by resolution MSC.72(69). The regulations provide that the sea lanes which have been excluded can be used for international navigation and might be accommodated for rights of transit passage.

65. *Ship routeing measures*. During 2002, IMO adopted new traffic separation schemes in the Red Sea and off Cape La Nao and off Cape Palos (Spain) and amended the existing schemes in the Strait of Bab-el Mandeb, in the Baltic Sea, in the Gulf of Finland, in the Bay of Fundy and Approaches (Canada), off the coast of France, off the west coast of the United States and the coast of Canada. It also amended the associated routeing measures.[37]

66. IMO also adopted three new mandatory no-anchoring areas in the Florida Keys, United States of America; a new area to be avoided around Malpelo island, Colombia; a 10-nautical-mile precautionary area around a floating production storage and offloading vessel off the coast of Canada; amended areas to be avoided off the coasts of Florida and Washington State, United States of America, and in the region of the Shetland Islands, United Kingdom; recommended routes off the Mediterranean coast of Egypt; recommended tracks and a precautionary area for the Red Sea; and a proposed recommendation on navigation through the Gulf of Finland (resolution MSC.138(76)). Spain announced at the meeting of the IMO Council, on 25 November 2002, that it intended to distance the transit of ships carrying dangerous goods from the current Finisterre traffic separation scheme and other sea lanes and would soon present a proposal to IMO on the issue. The Baltic Marine Environment Protection Commission (Helsinki Commission — HELCOM) adopted a Declaration on the Safety of Navigation and Emergency Capacity in the Baltic Sea

Area, which identified a series of routeing measures, reporting measures and the enhanced use of pilotage to improve navigation in the Baltic Sea and the Gulf of Finland.

67. IMO adopted three mandatory ship reporting systems during 2002 covering: (a) Greenland waters (resolution MSC.126(75)); (b) Gulf of Finland in the Baltic Sea; and (c) the Adriatic Sea (resolution MSC.139(76)). Amendments were also adopted to the existing mandatory "Off Ushant" (France) ship reporting system (resolution MSC.127(75)). The European Parliament and the European Council established a Community vessel traffic information system in 2002 with a view to enhancing the safety and efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to the improved prevention and detection of pollution by ships.[38]

2. Capacity-building for the production of nautical charts

68. Hydrographic surveys and nautical charting clearly play a crucial role in enabling the identification of dangers to navigation to which States are required by UNCLOS to give appropriate publicity and in providing information necessary to identify measures required to improve and ensure safe navigation. The enhanced safety of navigation provided by adequate nautical charts and information contribute directly to the protection of vulnerable marine ecosystems through a reduction in ship groundings and maritime accidents. Furthermore, the data collected and the services offered by national hydrographic offices have uses beyond ensuring the safety of navigation and are important components in marine pollution, coastal zone management and sensitive ecosystem identification and monitoring.

69. While paper charts are still being used for navigational purposes, there are significant benefits to electronic navigational charts (ENCs), in terms of both navigational safety and improved operational efficiency. IMO has requested member Governments to encourage their national hydrographic offices to produce ENCs and provide the associated updating service as soon as possible. The Baltic States decided to ensure that major shipping routes and ports were covered by ENCs by the end of 2002, and that port State control of paper charts was intensified on board ships with a draught of 11 metres or more, oil tankers with a draught of 7 metres or more, chemical tankers and gas carriers irrespective of size, and ships carrying a shipment of INF cargo.[39]

70. The International Hydrographic Organization (IHO) and IMO have emphasized the need for coastal States to discharge their responsibilities with respect to surveying and charting waters under their jurisdiction with a view to improving the safety of navigation and the protection of the marine environment. The General Assembly, in its resolution 53/32 of 24 November 1998, invited States to cooperate in carrying out hydrographic surveys and nautical services for the purpose of ensuring safe navigation as well as to ensure the greatest uniformity in charts and nautical publications and to coordinate their activities so that hydrographic and nautical information could be made available on a worldwide scale. In its resolutions 56/12 of 28 November 2001 and 57/141 of 12 December 2002, the Assembly invited IHO, in cooperation with other relevant international organizations and interested Member States, to provide the necessary assistance to States, in particular to developing countries, in order to enhance hydrographic

capabilities to ensure, in particular, the safety of navigation and the protection of the marine environment.

71. Revised chapter V of SOLAS includes a new regulation 9 on hydrographic services, according to which Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation. In particular, Governments must prepare and issue nautical charts, sailing directions, lists of lights, tide tables and other nautical publications to ensure safe navigation. They should also promulgate notices to mariners in order that nautical charts and publications may be kept up to date to ensure the greatest possible uniformity in charts and nautical publications and to take into account the relevant international resolutions and recommendations.

72. In order to assist full implementation of regulation 9, IHO has prepared a new resolution on provision of hydrographic services, to be considered by the IMO Assembly at its twenty-third session (November/December 2003). In the draft revised text of the resolution, Governments are recommended to take all necessary measures to arrange for or encourage the prompt transmission of new hydrographic information to IHO or to the hydrographic authorities in those countries which issue charts covering waters off their shores and otherwise ensure the earliest and widest dissemination of hydrographic information. Governments are furthermore invited to ensure that hydrographic surveying is carried out, as far as possible, in a manner adequate to the requirements of safe navigation and according to the hydrographic survey standards established by IHO. They are also invited: to promote, through their national maritime administrations, the use of electronic chart display and information systems (ECDIS) together with official ENCs; to cooperate with other Governments having little or no hydrographic capabilities, as appropriate, in the collection and dissemination of hydrographic data; to promote in consultation with, and with the assistance of, IMO and IHO, support for a Government which may request technical assistance in hydrographic matters; and to establish hydrographic offices, where they do not exist, in consultation with IHO.[40]

73. Safety of navigation, especially its enhancement through capacity-building for the production of nautical charts, is a fundamental goal of IHO, which seeks to expand the quality and coverage of navigational charts and services through: (a) coordination among national hydrographic offices; (b) uniformity of nautical charts and documents; (c) the adoption of reliable and efficient methods of carrying out and exploiting hydrographic surveys; and (d) development of the sciences in the field of hydrography and the techniques employed in descriptive oceanography.

74. IHO observes that chapter V of SOLAS has had the greatest impact on the global significance of hydrography. However, both the Johannesburg Plan of Implementation and article 76 of UNCLOS also carried an implied requirement for hydrographic surveys using modern techniques, effective management of the information acquired and an application of that information to further the safety of navigation and/or the assessment of the marine environment.

75. *Capacity-building*. IHO notes that both paragraphs 30 and 35 of General Assembly resolution 57/141 relate directly to the need to increase the capacity of States to provide an enhanced hydrographic capability to ensure the safety of navigation and the protection of the marine environment. Capacity-building was a high-priority, strategic issue of IHO and there had been notable advances in metrics

indicative of increased capacity. Although membership in IHO is not a prerequisite for assistance, it facilitates assistance through enhanced communication and increased visibility among other members. Membership increased from 70 to 73 in 2002 and the membership of the organization has increased by over 25 per cent since UNCLOS entered into force in 1994.

76. The most responsive and focused work of IHO occurs through its 14 regional hydrographic commissions, which encompass virtually all navigable seaways and provide a mechanism to bring regional focus to cooperative efforts, capacity-building and increased chart production. Full membership in a regional commission was open to IHO member States in the region, but associate membership was offered to any State with a maritime interest in the region. As an associate member, a developing State with a desire to create or enhance its hydrographic capability is introduced to other members ready and able to assist. The type of assistance offered varies. In some instances, member States will offer to survey, process, produce and maintain the necessary navigation information. Other member States offer financial and/or technical assistance to the developing State. In most cases, an initial effort includes meetings with developing State government officials to advocate the necessity and benefits of establishing a hydrographic service and initial liaison with potential funding sources.

77. IHO and/or the IHO regional commissions had conducted technical visits to the following countries during 2002: Albania, Bangladesh, Cape Verde, Colombia, Gabon, Ghana, Guatemala, Guinea, Lithuania, Mexico, Nigeria, Mauritania, Panama, Senegal and Sierra Leone. Seven additional countries in West Africa would be visited in 2003.

78. IHO stated that it did not have the resources to provide financial assistance to developing States: it seeks to develop partnerships with donor organizations. Notable efforts in this endeavour during 2002 included: the Central American Hydrographic Project, a partnership with IHO, the International Maritime Academy (IMA) and the Central American Commission for Maritime Transport (COCATRAM); the MEDA project, partnership with IHO, IMA and the European Commission providing hydrographic and cartographic equipment and training to countries of the southern and south-eastern Mediterranean; the CAMCHARTNET project, a Partnership between IHO, IMA and the European Commission providing hydrographic and cartographic equipment and training to countries on the Black Sea; and the Marine Electronic Highway, and a partnership between IHO, the Global Environment Facility (GEF), the World Bank and IMO providing safety of navigation enhancements for the Straits of Malacca and Singapore. The Marine Electronic Highway is envisioned to be a regional network of marine information technologies linked through ENCs and ECDIS.

79. UNEP reports that, with the support of the World Bank, a full hydrographic survey was taken of the southern Red Sea, covering 750 square nautical miles. This was a significant achievement as the area had not been comprehensively surveyed for over 100 years and had been considered a navigational "high risk", there being no official traffic separation schemes in place. The survey identified for the first time the correct location of rocks and other hazards and the results of the survey have been accepted by the United Kingdom Hydrographic Office, enabling the publication of new charts of the southern Red Sea. A proposed vessel traffic separation scheme was presented to IMO in December 2002 and approved at

MSC 76. The new charts and routes will contribute to a substantial improvement in the navigation safety in the region. Further enhancements and improvements are envisaged by the Red Sea and Gulf of Aden Environment Programme (PERGSA) through the establishment of lighthouses and an automatic vessel monitoring system.

80. *Training*. IHO explained that education was essential in creating and maintaining a modern hydrographic service. Over 20 IHO member States offer more than 30 technical training programmes in hydrography conforming to IHO guidelines. In some instances these programmes are offered free of charge while others provide scholarships to those attendees that demonstrate the need. IHO sponsors hydrographic and cartographic training at IMA with tuition funded by the European Union and Italy. The effectiveness of these training programmes is determined by the ability of graduates to successfully demonstrate minimum standards of competency for hydrographic surveyors, which are set by an advisory board of experts from IHO, the International Federation of Surveyors and the International Cartographic Association. Curricula are audited against these standards to ensure an adequate level of training. In 2002, minimum standards of competency for nautical cartographers were established.

81. *Data and publications*. IHO has provided recommended standards for the format of digital hydrographic databases through its publication S-57, "IHO Transfer Standard for Digital Hydrographic Data". In acknowledging the broader use of hydrographic data beyond the production of nautical charts, IHO, in 2002, began to extend the S-57 standard to additional oceanographic applications. Several publications of the IHO track the status of hydrographic survey and nautical cartography. The most recent version of Special Publication 55, "Status of Hydrographic Surveying", was published in 1998 and is scheduled for revision and updating in 2003. Special Publication 59, "Status of Hydrographic Surveying and Nautical Charting in Antarctica", was last updated in 2001 and is due to be updated and incorporated in S-55 during 2003. Publication M-11, "Catalogue of International Charts", was updated in 1997 and also is scheduled for revision in 2003.[41] A report on the status of ENCs currently under way will relate chart coverage to major shipping routes, with a view to highlighting the regions of the world most deficient in coverage.

82. The International Hydrographic Bureau, as the secretariat of IHO, cooperates with IMO, IOC, IMA and other organizations. Apart from the memoranda of understanding it has with IMO and IMA, relationships function through terms of reference for joint committees, including: IMO/IHO Harmonization Group on Electronic Chart Display and Information System (ECDIS); Joint IHO/IOC Guiding Committee for the General Bathymetric Chart of the Oceans; Subcommittee on Undersea Feature Names; Subcommittee on Digital Bathymetry; IHO/International Association of Geodesy/IOC Advisory Board on the Law of the Sea; and the International Electrotechnical Commission/IHO Harmonizing Group on Marine Information Objects.

83. *Matters requiring further action*. Although membership in IHO has increased to 73 States, with that of an additional 8 States pending, this figure is much lower than the total membership of 162 of IMO, and IHO is actively seeking new members. As a consultative and technical organization, it is well positioned to provide assistance to developing countries wishing to establish a modern hydrographic service. However, outside funding from donor partners is essential.

84. In summary, IHO has a long history of advocating safety of navigation through enhanced quality and coverage of nautical charts and information. It is aggressively pursuing, especially in developing countries, increased capacity to collect and process hydrographic data using modern techniques and the adequate coverage of accurate nautical charts and information. These activities are essential components for the safe and efficient use of the oceans as envisioned in UNCLOS.

E. Implementation and enforcement

1. Flag State implementation and enforcement

85. Today flag States are predominantly countries maintaining open registers with generally little maritime infrastructure.[42] While some are keenly aware that operating a ship register entails responsibilities, a minority of flag States show little interest in these responsibilities and their performance record does credit neither to themselves nor to the shipowners who persist in using them.[43] Their ships are sub-standard, that is, through their physical condition, their operation or the activities of their crew, they fail to meet basic standards of seaworthiness, violate international rules and standards, and pose a threat to life and/or the environment.

86. As studies carried out by the Organisation for Economic Cooperation and Development (OECD) demonstrate, maintaining a ship up to international standards is extremely expensive; furthermore, it is not difficult for owners to avoid full liability for damage caused by their vessels. Consequently, there is a positive economic incentive for some owners/operators not to meet international requirements. Even if a flag State eliminates a sub-standard ship from its register, the owner can easily find another accommodating flag State. Therefore, the current system appears to facilitate rather than deter the continuous operation of sub-standard ships. Lack of effective control by the flag State over ships flying its flag can pose a threat to the safety of navigation and the marine environment and can lead to the overexploitation of living marine resources. In this regard, the Food and Agriculture Organization of the United Nations (FAO) is planning to convene a meeting of countries operating open registers to inform them about the effects their uncontrolled vessels are having on world fisheries.

87. Furthermore, lack of effective flag State control can leave the shipping industry vulnerable to abuses by criminals involved in smuggling arms, trafficking in drugs, diamonds, etc. Because some flag States may be unaware of these criminal activities, greater vigilance and transparency are required in ship registration. In order to effectively combat and prevent the misuse of ships for illicit purposes, it is essential that the authorities have the capacity to obtain, on a timely basis, information on the beneficial owner of the ship and on the individual or corporation that has effective control of the ship.[44] OECD has warned that lack of transparency could enable terrorists to hide behind the corporate veil of the industry and that hard-to-trace corporate and ownership structures permit the elusion or dilution of responsibility for environmental disasters.[45] OECD has begun the second phase of an investigation into the various complex corporate mechanisms used to conceal ownership, with a focus on possible measures to address the issue. This research complements the work of IMO on maritime security.

88. The adoption and implementation of international rules and standards is rendered a meaningless exercise if they are not supported by effective enforcement.

The adoption of double-hull standards, while providing a protective layer in the event of an accident, is no substitute for the enforcement of proper standards of management, operation, maintenance and control. The most important factor in achieving safety of navigation is the effective implementation of international rules and standards governing all aspects of navigation and their subsequent enforcement on every ship. It is therefore essential that the efforts to improve the safety of navigation focus on enhancing flag State implementation and enforcement. The World Summit on Sustainable Development recognized this when in the Johannesburg Plan of Implementation it urged IMO to consider stronger mechanisms to secure the implementation of IMO instruments by flag States. The initiatives discussed below have recently been launched to assist flag States in meeting their responsibilities.

89. *Voluntary audit scheme*. In June 2002, the IMO Council approved in principle the concept of a proposed IMO model audit scheme. The scheme is designed to help promote maritime safety and environmental protection by assessing how effectively member States implement and enforce relevant IMO Convention standards and by providing them with feedback and advice on their current performance. The General Assembly, in its resolution 57/141, welcomed the decision of IMO to approve in principle the concept of a voluntary audit scheme as a means of enhancing the performance of member States. Some States have expressed support for the development of a compulsory model audit scheme,[46] similar to the safety oversight programme of the International Civil Aviation Organization, initially conceived as voluntary, but changed after two years to a regular, mandatory, systematic and harmonized safety audit.[47]

90. *Draft flag State implementation code*. During the tenth session of the IMO Subcommittee on Flag State Implementation, several delegations insisted that the role and responsibilities of flag States needed to be strengthened, referring to recommendations of the 1998 Ministerial Conference in Vancouver, Canada, and decision 7/1 of the Commission on Sustainable Development (A/54/429, para. 183). They proposed to update IMO Assembly resolution A.847(20), to introduce transparent criteria for the proper implementation of IMO instruments by flag States, and to transform the guidelines into a flag State implementation code, to become mandatory at a later stage. The code would list the relevant Conventions, including UNCLOS, and describe the required administrative infrastructure and processes for implementation and enforcement. It would also describe obligations of flag States with respect to registration requirements: they should be able to exercise effective control over their ships before registering them, in particular in cases of transfer of ships between registers. Other parts of the code would address delegation of authority, flag State surveyors, investigations and reporting to IMO.[48] Although there was general support in principle for the proposals, several delegations insisted that it would not be appropriate to have a single model dictating how individual flag States should proceed with the implementation of the relevant international conventions at the national level. The Subcommittee requested that a plan detailing how to proceed on the issue be submitted to MSC and MEPC.[49]

91. The policy statement on sub-standard shipping issued in 2002 by the OECD Maritime Transport Committee recognizes that while IMO has prime competence for the regulation of shipping engaged in international trade from the point of view of maritime safety, the efficiency of navigation and the prevention and control of marine pollution from the ship, much can be done by Governments, international

organizations and other players in the maritime industry to minimize the incidence of sub-standard shipping. OECD endorsed the following actions: (a) flag States should not accept new vessels on their registers without ensuring that they meet all international requirements; (b) port States should apply sanctions (including detention) and penalties that are adequate to discourage operators and users of sub-standard ships; (c) the insurance industry should identify and target providers and users of sub-standard ships and should consider refraining from providing insurance coverage unless the deficiencies which make these ships unsafe are eliminated; (d) OECD members will work with industry to develop the concept of incentives for responsible shipowners and other parties in the industry, in order to encourage them to attain appropriate standards, and to be able to better combat the non-market competition posed by operators and users of sub-standard ships; and (e) OECD members will work actively, including through IMO, to consider some international means of facilitating proof of negligence, not only on the part of shipowners, but also of charterers, cargo interests, classification societies and others, where they have wilfully taken advantage of the existence of sub-standard shipping.

2. Port State control

92. Effective flag State implementation and enforcement would lead to a reduction in the current reliance on port State control, which initially was only supposed to act as a safety net. For it is the duty of flag States, not port States, to ensure that ships meet internationally agreed safety and pollution prevention standards. In reality, however, increasing reliance is being placed on the port State to exercise the necessary control. The role of the port State will increase when it assumes the new responsibility of ensuring compliance with maritime security regulations by vessels calling at its ports. The port State will also often be entrusted with inspecting fishing vessels to ensure that they are complying with conservation and management measures.

93. Eight regional agreements on port State control are currently in operation, beginning with the 1982 Paris Memorandum of Understanding on Port State Control, followed by others covering: Asia and the Pacific, the Black Sea, the Indian Ocean, Latin America, the Mediterranean Sea, and West and Central Africa. A regional Memorandum of Understanding for the Gulf region is under preparation. Following the *Prestige* accident, Spain and France proposed further improvements to the Paris Memorandum of Understanding, including inspections of ships transporting hazardous or dangerous materials and the introduction of the European Certificate of Conformity specifying the structure of the vessel for entry into European ports. Furthermore, masters of ships reported to have defects in previous inspections, or with any pending deficiencies, would have to notify the authorities 48 hours before entering port.[50] The European Commission has recently published an indicative blacklist of 66 ships, representing 13 flags, that have been detained on several occasions in European ports for failing to comply with maritime safety rules. It hopes that publishing this information will encourage operators to refrain from chartering sub-standard ships and that the owners and flag States in question will immediately apply more stringent maritime standards.[51]

F. Assistance in distress situations

1. Rescue of persons in distress

94. The duty to render assistance to any person in distress at sea is clearly established as a principle of maritime law and enshrined in article 98 of UNCLOS, SOLAS, article 10 of the 1989 Salvage Convention, and in the 1979 International Convention on Maritime Search and Rescue. In 2002, several initiatives were launched in response to the incident involving the vessel *Tampa* and pursuant to the call in IMO Assembly resolution A.920 (22) for a review of safety measures and procedures for the treatment of persons rescued at sea. The IMO Maritime Safety Committee at its seventy-fifth session reviewed issues relating to the rescue of persons at sea, requesting MSC, the Legal Committee and the Facilitation Committee to review all relevant IMO instruments to identify any existing gaps, inconsistencies, ambiguities, vagueness or other inadequacies concerning the rescue of persons at sea. The United Nations High Commissioner for Refugees (UNHCR) actively participated in discussions at the seventy-fifth and seventy-sixth MSC sessions focused on the meaning of the phrase "delivery to a place of safety" and the advisability of introducing amendments to SAR and SOLAS (and possibly other relevant legal instruments) with a view to clarifying the term. The IMO Secretary-General brought the issue of persons rescued at sea to the attention of a number of competent specialized agencies and programmes of the United Nations system, pointing out the need for a coordinated approach to all attendant aspects at the inter-agency level and proposing the establishment of a mechanism to ensure a coordinated response in any future emergency.

95. IMO convened an inter-agency Meeting on the Treatment of Persons Rescued at Sea at UNHCR headquarters, Geneva, in July 2002, with the participation of representatives of UNHCR, the United Nations Office on Drugs and Crime, the Office of the United Nations High Commissioner for Human Rights (OHCHR), the International Organization for Migration and the Division for Ocean Affairs and the Law of the Sea, to consider more effective modes of cooperation in response to emergency situations at sea, such as the *Tampa* incident. The issues at stake were the need for States to respect and ensure respect for the rights and dignity of the persons rescued at sea regardless of their status; their legitimate interest in maintaining effective border and immigration controls and preventing and combating transnational organized crimes such as the smuggling of migrants and trafficking in human beings; the need to meet the immediate humanitarian requirements of rescued persons and stowaways and to ensure that those seeking asylum are protected from immediate danger and are granted prompt access to fair and efficient status determination procedures in full compliance with respect for the principle of non-refoulement; and the need to maintain security and stability in international shipping.

96. The meeting established a focal point system to facilitate a more coordinated response to future emergency cases necessitating action at the inter-agency level and considered the desirability of developing guidelines for: (a) its members to use when the coordinating mechanism group is activated in future emergency cases; and (b) Governments on action they might wish to take in future cases of persons rescued at sea involving asylum-seekers and/or refugees.[52] UNHCR believes that although the inter-agency group had only met on this one occasion, the working level interaction established between the different participating agencies had contributed to ongoing

cooperation on issues of common concern. Earlier, in March 2002, UNHCR had held an expert round table in Lisbon involving participants from government, the shipping industry, international organizations, including IMO, OHCHR and the Division for Ocean Affairs and the Law of the Sea, non-governmental organizations and academia to discuss the challenges posed by complex rescue scenarios. The round table, inter alia, emphasized the importance of upholding the integrity of the global search-and-rescue regime and of international cooperative efforts to adequately address the complex components of rescue scenarios involving asylum-seekers and refugees.[53] The outcome of the UNHCR and IMO initiatives was considered at an informal meeting in Sweden in September 2002, by MSC in December 2002 and by the IMO Subcommittee on Radio Communications and Search and Rescue in January 2003. Draft amendments to SOLAS and the 1979 International Convention on Maritime Search and Rescue (SAR Convention) have been prepared for consideration by MSC in 2003.[54]

97. The General Assembly, in its resolution 57/141, welcomed the initiatives by IMO, UNHCR and IOM to address the issue of the treatment of persons rescued at sea. UNHCR has stated that the contribution of the Division for Ocean Affairs and the Law of the Sea, OHCHR and the United Nations Office on Drugs and Crime to these initiatives should have been highlighted in the resolution to illustrate the broad-based approach to inter-agency cooperation.

2. Ships in distress

98. The incidents involving the tanker *Castor* in December 2000 (see A/57/57, paras. 119-120) and the *Prestige* in December 2002 have highlighted the need for clear guidance for actions to be taken by ships' masters, coastal States and flag States when ships need assistance at sea. IMO has therefore given priority attention to the consideration of the problem of places of refuge for disabled vessels and the adoption of measures required to ensure that in the interests of safety of life at sea and environmental protection, coastal States review their contingency arrangements so that such ships are provided with any assistance and facilities required.

99. Following a decision by MSC 75 that the issue should be considered from the operational safety point of view, the Subcommittee on Safety of Navigation prepared two draft Assembly resolutions. The first includes guidelines recommending actions to be taken by ships' masters, coastal States and flag States when ships need assistance. The second resolution recommends the establishment by coastal States of maritime assistance services to be mobilized when required. The guidelines on places of refuge are intended to be used when a ship is in need of assistance but safety of life is not involved. Where safety of life is involved, the provisions of the SAR Convention should be followed. The guidelines recognize that when a ship has suffered an incident, the best way of preventing damage or pollution from its progressive deterioration is to transfer its cargo and bunkers, and to repair the casualty. Such an operation is best carried out in a place of refuge.

100. A new directive adopted by the European Parliament and the Council requires member States to draw up plans, taking into account the IMO guidelines, to accommodate ships in distress in waters under their jurisdiction. Such plans must contain the necessary arrangements and procedures taking into account operational and environmental constraints to ensure that ships in distress may immediately go to a place of refuge subject to certification by the competent authority. The European

Commission has been requested to examine the need for and feasibility of measures at the Community level aimed at facilitating the recovery of, or compensation for, costs and damages incurred through accommodating ships in distress, including appropriate requirements for insurance or other financial security.

V. Crimes at sea

101. International terrorism, transnational organized crime and illicit drug trafficking are listed among the global threats and challenges of the twenty-first century in respect of which the United Nations has been requested by the General Assembly to study ways and means to promote further, under its lead, a more comprehensive and coherent response.[55] The terrorist attack on the tanker *Limburg* off the coast of Yemen in 2002 and the continuous increase in smuggling of migrants and illicit traffic in narcotic drugs and psychotropic substances by sea, generally the work of organized criminals, demonstrate that there is a maritime dimension to these global threats and challenges. Action to combat and suppress these and other criminal activities at sea, such as piracy and armed robbery, poses a particular challenge for a global industry like the maritime transport industry. International cooperation and coordination is therefore a vital prerequisite for effective action. It is encouraging to note that an increasing number of regions have identified the need to combat criminal activities at sea among their priorities for regional cooperation and have agreed to strengthen exchange of information and personnel, training and enhanced capacity-building and joint research.[56]

A. Prevention and suppression of acts of terrorism against shipping

102. In the past year, the United Nations intensified its work in the fight against terrorism. The Security Council, by its resolution 1373 (2001) of 28 September 2001, imposed binding obligations on Member States to suppress and prevent terrorism, and established a Counter-Terrorism Committee to monitor implementation of the resolution. The General Assembly, at its fifty-seventh session, reaffirmed that international cooperation as well as actions by States to combat terrorism should be conducted in conformity with the principles of the Charter of the United Nations, international law and relevant international conventions.[57] Further, in the prevention and suppression of acts of terrorism against shipping, it is important to maintain a balance between the need to take protective measures to counter the threat to maritime security on the one hand, and the need to respect international law, in particular human rights law on the other.[58] A balance must also be sought between tightening security measures and maintaining the efficient flow of international trade.

103. New security measures are already affecting the maritime transport industry; for example, marine insurers have tripled the premiums they charge tankers passing through Yemeni waters.[59] The United States now requires detailed cargo manifests for the loading of containers bound for its ports, which has led to significant changes in the loading of containers in major ports, such as Hong Kong SAR.[60] The new IMO International Ship and Port Facility Security Code (ISPS Code) will have an even more significant impact on the maritime transport industry.

104. In resolution 57/141, the General Assembly welcomed IMO initiatives to counter the threat to maritime security from terrorism and encouraged States to fully support that endeavour, including the adoption of amendments to SOLAS and the International Maritime Security Code at the December 2002 Conference of Contracting Parties to SOLAS (set to enter into force in July 2004).[61] New measures to strengthen maritime security and prevent and suppress acts of terrorism against shipping have been included in a new chapter XI-2 of SOLAS, in amendments to existing chapters, i.e., chapters V and XI-1, and in a ISPS Code. The purpose of the code is to provide a standardized, consistent framework for evaluating risk, enabling Governments to offset changes in threat with changes in vulnerability for ships and port facilities. Modifications to chapter V (Safety of navigation) of SOLAS contain a new timetable for the fitting of Automatic Information Systems (AISs). Ships, other than passenger ships and tankers, of less than 50,000 gross tonnage will be required to fit AISs at the latest by 31 December 2004.

105. The existing SOLAS chapter XI (Special measures to enhance maritime safety) has been re-numbered as chapter XI-1. Its regulation 1/3 has been modified to require ships' identification numbers to be permanently marked in a visible place on either the ship's hull or its superstructure as well as internally. A new regulation 1/5 requires ships to be issued with a continuous synopsis record (CSR), which is intended to provide an on-board record of the history of the ship. The CSR must be issued by the administration and contain information such as the names of the ship and the flag State, the date on which the ship was registered with that State, the ship's identification number, the port at which the ship is registered and the name of the registered owner(s) and their registered address. Any changes have to be recorded in the CSR within three months so as to provide updated and current information together with the history of the changes.

106. A new chapter XI-2 (Special measures to enhance maritime security) has been added after the renumbered chapter XI-1. Both flag States and coastal States have to conduct security assessments for their ships or port facilities within their territory which serve ships engaged on international voyages, pursuant to which a security plan is then developed. All ships must be provided with a ship security alert system, according to a strict timetable that will see most vessels fitted by 2004 and the remainder by 2006. Ships will have to carry an International Ship Security Certificate indicating that they comply with the requirements of SOLAS chapter XI-2 and part A of the ISPS Code. The ship is subject to port State control inspections, but such inspections will not normally extend to examination of the ship security plan itself except in specific circumstances. A coastal State may require a ship intending to enter its ports to notify in advance whether it complies with the requirements. The amendments to SOLAS and the ISPS Code represent a significant change in the approach of the international maritime industry to the issue of security in the maritime transport sector. The December 2002 SOLAS Conference recognized that this may place a significant additional burden on Contracting Governments and adopted two resolutions addressing the need to provide assistance to States.

107. The General Assembly also urged States to become parties to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) and its Protocol, and invited States to participate in the review of those instruments by the IMO Legal Committee to strengthen the means of combating such unlawful acts, including terrorist acts, and further urged States to

take appropriate measures to ensure the effective implementation of those instruments, in particular through the adoption of legislation, where appropriate, aimed at ensuring that there is a proper framework for responses to incidents of armed robbery and terrorist acts at sea.[62] The Legal Committee has begun considering possible amendments to the SUA Convention and its Protocol on the basis of a working paper prepared by a correspondence group.

B. Piracy and armed robbery against ships

108. The Maritime Safety Committee recently noted that although after 11 September 2001 emphasis had been placed on maritime security, the issue of piracy and armed robbery against ships continued to cast a black spot on the image of the shipping industry as a whole. During the first 10 months of 2002, there had been a 20 per cent increase in the number of such acts reported to IMO (315), compared with the figure for the same period in 2001 (263). Twelve ships had been hijacked and eight had disappeared. Reports indicate that the areas most affected were the Far East, in particular the South China Sea and the Straits of Malacca, the Indian Ocean, the Caribbean, South America (Pacific and Atlantic) and West and East Africa.[63] The General Assembly in its resolution 57/141 once again urged all States and relevant international bodies to cooperate to prevent and combat piracy and armed robbery at sea by adopting measures, including those relating to assisting with capacity-building, prevention, reporting and investigating incidents, and bringing the alleged perpetrators to justice, in accordance with international law, and through the adoption of national legislation, as well as through training seafarers, port staff and enforcement personnel, providing enforcement vessels and equipment and guarding against fraudulent ship registration. Furthermore, the Assembly once again called upon States and private entities concerned to cooperate fully with IMO, including by submitting reports on incidents to the organization and by implementing its guidelines on preventing attacks of piracy and armed robbery.

C. Smuggling of migrants

109. The United Nations Centre for International Crime Prevention reports that the smuggling of migrants continues to pose a major challenge in terms of human rights, crime control and maritime issues. The International Organization for Migration in its contribution to the present report explained that one of its strategic objectives was to help States and migrants find solutions to the problems and causes of irregular migration, which it views as necessitating a holistic response. Preventative as well as responsive measures are needed. Its objective in countering trafficking is defined as "to curtail migrant trafficking and to protect the rights of migrants caught up in the practice".

110. More immediate emphasis has been placed by States on increasing enforcement measures. In 2002, Spanish authorities arrested 16,504 boat people on its coasts, 11 per cent fewer than in 2001. The majority were picked up in the Canaries, as opposed to the Strait of Gibraltar, which had been the primary route for entering Spain illegally in 2001, before stricter enforcement measures were adopted. The number of repatriations increased by 63.7 per cent in 2002 to 79,467, at a rate of 204 a day.[64] It has been estimated that about 4,000 people have drowned in the Strait of Gibraltar and in the adjacent Atlantic since 1997.[65]

111. Spain, Italy and Greece consider themselves prime targets for migration into the European Union. About two thirds of those entering Europe from Asia, Africa and the Middle East do so via the Aegean and the Mediterranean seas. Recently almost 5,000 migrants, mostly from Iraq and Pakistan, arrived within one week. Greece was particularly concerned about the potential wave of refugees from Iraq in the event of a war, and asked other European countries to agree to a "burden-sharing" arrangement.[66] Ships from five European nations (Spain, United Kingdom, France, Italy and Portugal) have begun patrolling the Mediterranean in an attempt to combat illegal migration. Enforcement officers will have the power to board any suspect vessel and escort it to the nearest European port if necessary.[67]

112. The General Assembly, in its resolution 57/141, urged States that had not done so to become parties to the Protocol against the Smuggling of Migrants by Land, Sea and Air and to take appropriate measures to ensure its effective implementation. Noting the increasing problem of unsafe transport at sea generally, and particularly in the smuggling of migrants, the Assembly urged Member States to work together cooperatively and with IMO to strengthen measures to prevent the embarkation of ships involved in the smuggling of migrants. The IMO interim measures for combating unsafe practices associated with the trafficking or transport of illegal migrants by sea (MSC/Circ.896/Rev.1) recommend that a State should prevent a ship in its port from sailing if it is (a) obviously in conditions which violate fundamental principles of safety at sea, in particular those of the SOLAS Convention, or (b) not properly manned, equipped or licensed for carrying passengers on international voyages, and thereby constitutes a serious danger to the lives or the health of the persons on board, including the conditions for embarkation and disembarkation.

VI. Marine resources, the marine environment and sustainable development

113. In the words of the World Summit on Sustainable Development,

> "Oceans, seas, islands and coastal areas form an integrated and essential component of the Earth's ecosystem and are critical for global food security and for sustaining economic prosperity and the well-being of many national economies, particularly in developing countries. Ensuring the sustainable development of the oceans requires effective coordination and cooperation, including at the global and regional levels, between relevant bodies ...".[68]

114. On 20 December 2002, the General Assembly adopted resolution 57/253, entitled "World Summit on Sustainable Development", in which it endorsed the Johannesburg Declaration on Sustainable Development[69] and the Jonannesburg Plan of Implementation[70] and decided to adopt sustainable development as a key element of the overreaching framework for United Nations activities, in particular for achieving internationally the agreed development goals, including those in the United Nations Millennium Declaration.[71] The Assembly further called for the implementation of the commitments, programmes and time-bound targets adopted at the Summit, and urged Governments and all relevant international and regional organizations, agencies and institutions, as well as major groups, to take timely actions to ensure the effective follow-up and implementation of the Johannesburg outcomes.

115. On the same date, the General Assembly also adopted resolution 57/262, entitled "Further implementation of the Programme of Action for the Sustainable Development of Small Island Developing States", in which it decided to convene an international meeting in 2004, pursuant to the recommendation of the Johannesburg Summit, to undertake a comprehensive review of implementation of the Programme of Action for the Sustainable Development of Small Island Developing States.[72] Mauritius offered to host the meeting.

116. In its annual resolution on the item "Oceans and law of the sea", the General Assembly welcomed the Johannesburg Plan of Implementation and the commitments set out therein to actions at all levels, within specific periods for certain goals, to ensure the sustainable development of the oceans. The World Summit recommended that the Commission on Sustainable Development review and monitor the further implementation of the commitments contained in the Plan of Implementation. The eleventh session of the Commission is to be held in New York from 29 April to 9 May 2003.

A. Conservation and management of marine living resources

117. The world's marine capture fisheries are currently at a crossroads. Following an evolution over the past 50 years marked by many institutional, legal, technological and biological challenges, generating changing demand, and uncertain political, social and economic environments in the sector, marine fisheries have now to balance conflicting requirements of short-term economic and social benefits in the utilization of fishery resources and the need to ensure the long-term sustainability of such resources. As a result, the international approach to fisheries management has changed dramatically. From the production and expansion of fisheries through the exploitation of existing and new resources, emphasis is now placed on a conservation-oriented approach, which integrates into fisheries management broad conservation objectives beyond fisheries, including consideration of the effects of fishery activities on the marine ecosystem as a whole. The legal and policy framework for such an approach is embodied in the legally binding agreements as well as the voluntary instruments adopted further to the recommendations contained in the 1992 UNCED Agenda 21, chapter 17. These include the United Nations Fish Stocks Agreement, the FAO Compliance Agreement, the Code of Conduct for Responsible Fisheries and its related international plans of action, and the Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biological Diversity. Some of these instruments are in the early phase of implementation, while implementation of others has not yet begun. However, a consensus emerged in the Johannesburg Plan of Implementation that all the instruments must be implemented in order to ensure sustainable fisheries and promote the conservation and management of the oceans.[73]

1. The United Nations Fish Stocks Agreement

118. The General Assembly, in its resolution 57/143 of 12 December 2002, requested the Secretary-General to convene a second round of informal consultations with States that have either ratified or acceded to the United Nations Fish Stocks Agreement, in order to consider the national, subregional, regional and global implementation of the Agreement, and to make any appropriate

recommendation to the General Assembly at its fifty-eighth session. This second informal meeting is to be held at the end of July 2003.

119. At their first informal meeting in July 2002, the parties to the United Nations Fish Stocks Agreement declared that the most important aspect of implementation of the Agreement was the programme of assistance with multiple components for developing States parties, in accordance with Part VII of the Agreement. They also indicated that one component of such a programme would be the establishment of a voluntary fund devoted to the implementation of the objectives set forth in articles 25 and 26 of the Agreement.

120. Accordingly, States parties decided that one of the key issues for the second informal meeting would be consideration of the terms of reference of the voluntary trust fund for the implementation of Part VII of the Agreement. The General Assembly emphasized that the following activities should be considered for early implementation through the fund: (a) facilitating the participation of developing States parties in relevant regional and subregional fisheries management organizations and arrangements; (b) assisting with travel costs associated with the participation of developing States parties in meetings of relevant global organizations; (c) supporting ongoing and future negotiations to establish new regional or subregional fisheries management organizations and arrangements in areas without such bodies currently in place, and to strengthen existing subregional and regional fisheries management organizations and arrangements; (d) building capacity for activities in key areas such as monitoring, control and surveillance, data collection and scientific research; (e) exchanging information and experience in the implementation of the Agreement; and (f) assisting with human resources development and technical assistance.[74] Other main topics for the consultations would include application of the precautionary approach and questions of compliance and enforcement.

121. In order to facilitate discussions the Secretary-General was requested to prepare a study on current activities under Part VII of the Agreement, including a survey and analysis of current assistance programmes under way in support of Part VII principles. Furthermore, he was invited to prepare a survey on activities relating to the implementation of the Agreement, on the basis of information provided voluntarily by States parties and non-States parties, subregional and regional fisheries management organizations and arrangements, with a view to encouraging through such a mechanism greater exchange of information with regard to implementation of the Agreement.[75]

2. Actions to combat IUU fishing activities

122. Illegal, unreported and unregulated (IUU) fishing is one of the main issues facing fisheries governance. For this reason the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) was adopted by the FAO Committee on Fisheries (COFI) in March 2001, and IUU fishing continues to be addressed in a wide range of national, regional and international forums. IPOA-IUU has been widely disseminated, and States and regional fisheries management organizations and arrangements are being urged to take steps to implement the plan. In 2002, FAO published Technical Guideline No. 9 concerning the implementation of IPOA-IUU, to assist government officials in the elaboration of national plans called for in IPOA-IUU. A simple-language version of

the international plan of action entitled "Stopping Illegal Unreported and Unregulated Fishing" was distributed to fishing communities and fishers in order to sensitize them about the issues and significance of IUU fishing.

123. FAO is continuing to assess the linkage between subsidies, fishing capacity and IUU fishing,[76] working with States and regional fisheries management organizations and arrangements to strengthen regional and international monitoring, control and surveillance networks to report and disseminate information, in real time, about the operations of IUU fishers. It is also monitoring global developments in IUU fishing and is reporting on these developments at United Nations and FAO forums. FAO presented its first progress report on achievements in the implementation of IPOA-IUU at the twenty-fifth session of COFI (February 2003), together with its report on the implementation of the Code of Conduct. FAO is also planning a meeting of countries that operate open registers, so-called flag-of-convenience States, in 2003 to raise awareness in those States about the effects their vessels are having on world fisheries.

124. In November 2002, FAO hosted an Expert Consultation to Review Port State Measures to Combat Illegal, Unreported and Unregulated Fishing. The consultation elaborated a draft memorandum of understanding on port State measures to combat IUU fishing, and recommended that FAO:

(a) Convene a technical consultation addressing principles and guidelines for the establishment of regional memorandums of understanding on port State measures to prevent, deter and eliminate illegal, unreported and unregulated fishing;

(b) Elaborate and implement programmes of assistance to facilitate human resources development and institutional strengthening, including legal assistance, in developing countries so as to promote the full and effective implementation of port State measures to combat IUU fishing;

(c) Consider the establishment of a database concerning relevant port State measures.

125. Also in November 2002, Spain, in technical collaboration with FAO and with the assistance of the European Union, convened an International Conference on Illegal, Unreported and Unregulated Fishing to discuss measures to address IUU fishing at the national and global levels. Spain presented its national plan of action to combat illegal, unreported and unregulated fishing.

126. At the United Nations, the World Summit on Sustainable Development, in the Johannesburg Plan of Implementation, declared that in order to achieve sustainable fisheries, actions should be taken to develop urgently and implement national and regional plans of action, to put into effect IPOA-IUU by 2004 and to establish effective monitoring, reporting and enforcement, and control of fishing vessels, including by flag States, to further the plan of action. It also urged the international community to eliminate subsidies that contribute to IUU fishing and overcapacity, while completing the efforts undertaken at the World Trade Organization (WTO) to clarify and improve its disciplines on fisheries subsidies, taking into account the importance of the sector to developing countries.[77]

127. The General Assembly at its fifty-seventh session also pronounced itself in several instances on the global fight waged by the international community against IUU fishing. In resolution 57/141, the Assembly urged States to take all necessary

steps to implement the international plan of action adopted by the FAO Committee on Fisheries to prevent, deter and eliminate IUU fishing, including through relevant subregional and regional fisheries management organizations and arrangements. In its resolution 57/142 of 12 December 2002, entitled "Large-scale pelagic drift-net fishing, unauthorized fishing in zones of national jurisdiction and on the high seas/illegal, unreported and unregulated fishing, fisheries by-catch and discards, and other developments", the Assembly reiterated the recommendations agreed at the World Summit on Sustainable Development. Furthermore, it invited FAO to continue its cooperative arrangements with United Nations agencies on the implementation of IPOA-IUU and to report to the Secretary-General on priorities for cooperation and coordination in that work, and affirmed the need to strengthen the international legal framework for intergovernmental cooperation in the management of fish stocks and in combating IUU fishing, in a manner consistent with international law. It was decided to consolidate all fisheries issues under one sub-item with the title "Sustainable fisheries, including through the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments". This will enhance the integrated approach in this difficult field.

3. Regional fisheries management organizations

128. Since the early 1990s, the international community has adopted a number of instruments to enhance the legal framework for fisheries management laid down in UNCLOS.[78] All these instruments deal with contemporary issues such as good governance of fishery resources; excess fleet capacity and overexploitation of resources; by-catch and discards; IUU fishing; monitoring, control, surveillance and enforcement; measures to improve data collection; application of the precautionary approach and the ecosystem approach; as well as the critical role that subregional and regional fisheries management organizations and arrangements could play in addressing those issues. However, it is well known that regional fisheries bodies have only been variably successful in conserving the resources under their competence, owing, inter alia, to the inadequacies of their mandates to conserve and manage the resources and their inability to enforce their regulatory measures, even vis-à-vis their own members.

129. In view of this situation, in 1997, FAO/COFI agreed that all FAO regional fisheries organizations and arrangements should be reviewed and evaluated by their members to determine measures to be taken to strengthen them. The Committee emphasized that there should be close coordination between FAO and non-FAO regional fisheries bodies, and with other organizations dealing with fishery issues.[79] Consequently, a first meeting of FAO and non-FAO regional fisheries bodies and arrangements was held in Rome in February 1999 to discuss three main items: major issues affecting the performance of regional fisheries organizations; a multifaceted approach to fishery status and trends reporting; and regional fishery bodies as vehicles for good fishery governance. It reached conclusions on the importance of the precautionary approach for fisheries management and governance and on involving all stakeholders in developing management measures, as well as the urgency of continuing the adjustment of their mandates, structures and policies in order to respond more effectively to challenges facing world fisheries.[80] At their second meeting in February 2001, the FAO and non-FAO regional fisheries bodies and arrangements discussed some external factors that might impact on their work

and fisheries management, such as pollution from land-based activities; cooperation in global trends and status reporting in fisheries; IUU fishing; developments in CITES criteria for listing commercially exploited aquatic resources; and opportunities and challenges for coordinated activities in the ecosystem-based management of fisheries.[81]

4. Other activities of FAO

(a) Vessel monitoring systems and satellite surveillance

130. In 2002, FAO held a successful workshop on vessel monitoring systems (VMSs) in Senegal for the countries of the Sub-Regional Fisheries Commission (Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone). It plans to conduct a series of similar VMS workshops in West Africa, East Africa, Central America, the Near East and South-East Asia. FAO is also developing model legislation for VMS which will assist countries in rapidly introducing legislation to support VMS measures. In December 2002, FAO commissioned a study to assess the development of electronic logbooks for catch data, with specific reference as to how such logs can be incorporated into VMS. For 2003, FAO proposes to hold an expert consultation on VMS data formats and procedures. The consultation will aim to ensure compatibility between different systems that are being developed.

131. FAO has noted an increase in use of VMS for the monitoring, control and surveillance of fishing vessels over the last five years: from an estimated five or six countries using VMS to monitor the activities of 2,000 fishing vessels in 1998, in 2002, it was being used in 70 countries to monitor 20,000 vessels. All countries with substantial fisheries resources have now implemented VMS, and those currently without it are nearly all developing countries. Another important development is the use of VMS by regional fisheries management organizations in their regulatory areas to establish a monitoring regime on the high seas. The North-East Atlantic Fisheries Commission and the North Atlantic Fisheries Organization both require all the vessels of their members to report by VMS to their flag State and to the regional fisheries management organizations when in the regulatory area (i.e. while within the geographical area but outside the 200 nm limits of the exclusive economic zone). The Indian Ocean Tuna Commission has adopted a resolution requiring its members to apply VMS to 10 per cent of their vessels over 20 m in length as from mid-2003. The Commission for the Conservation of Antarctic Marine Living Resources and the International Commission for the Conservation of Atlantic Tunas are considering similar measures.

132. In addition, electronic logbooks are being introduced so that VMS is also capable of reporting catch data in addition to position data. This development introduces the possibility of real-time fisheries management, with measures being taken immediately. Electronic logbooks are now being used in Australia, Canada, Iceland, and the United States of America (North Pacific), and they will be introduced by the European Community for vessels greater than 24 m in 2004. An important area of complementary development is the use of satellite surveillance to detect the presence of fishing vessels not reporting by VMS. It is already in use in Australia, and the European Community, Iceland, Canada and Norway have been conducting pilot studies on satellite surveillance (Synthetic Aperture Radar) with the Joint European Research Centre over the past few years. These methods may be

introduced to monitoring, control and surveillance in European Community fisheries in 2004.

(b) Fisheries subsidies

133. In 2002, FAO continued to study the subject of subsidies in fisheries pursuant to the mandate received at the twenty-fourth session of COFI giving FAO the lead role in the promotion of cooperation and coordination among intergovernmental organizations of their work on subsidies in fisheries. In July 2002, FAO hosted the Second Ad Hoc Meeting of Intergovernmental Organizations on Work Programmes Related to Subsidies in Fisheries (Rome, 4-5 July 2002)[82] in order to provide the opportunity to exchange information regarding ongoing activities, to create synergies and to avoid duplication of work.[83]

134. Moreover, FAO continued monitoring the economic performance of capture fisheries, expanding it to include also a review of subsidies. The results were reported in a technical paper and highlighted in the *State of the World Fisheries and Aquaculture 2002*.[84] A FAO expert consultation held in December 2002[85] strongly recommended that FAO support the use of the draft guide for identifying, assessing and reporting on subsidies in the fishing industry drawn up by the consultation, which may be published in 2003. The consultation also suggested that FAO improve guidance on assessing subsidies that: (a) have both long-term and short-term effects; (b) may occur as a consequence of government inaction; and (c) may be linked to resource pricing. Furthermore, it recommended that FAO undertake analytical work on impacts and provided general advice on how such work can be carried out. Following a review of the conclusions and recommendations of the Expert Consultation on Identifying, Assessing a Reporting on Subsidies in the Fishing Industry by COFI in February 2003, the Committee agreed that FAO should convene a technical consultation on subsidies in the fisheries sector in 2004. It also agreed that the technical consultation should be prepared in cooperation with other relevant international organizations and that its work should focus on the impacts of subsidies on the sustainability of fisheries resources, in particular their effects on overcapacity, overfishing and IUU fishing.

(c) Management of fishing capacity

135. Since the adoption of the International Plan of Action for the Management of Fishing Capacity by COFI in February 1999, the plan of action has been widely disseminated and measures for implementation have been taken by numerous countries and regional fisheries management organizations. FAO has begun to develop technical documentation related to measurement and assessment of fishing capacity and to policy issues arising in measures that can be taken to manage and eventually reduce such capacity. It has also been working with selected regional fisheries management organizations to assess issues and develop policies for the management of fishing capacity. Because the management of fishing capacity is one of the main issues facing fisheries governance and because it has been increasingly addressed over the last decade in a wide range of national and international forums, a sustained effort will have to continue in order to monitor progress made in the implementation of the international plan of action. FAO will report on such progress at the twenty-fifth session of COFI.

136. Other actions already completed or to be undertaken by FAO include:

(a) The organization in 2002 and 2003 of a series of case studies on the management of fishing capacity in Latin America;

(b) The organization in October 2002 of a Workshop on Monitoring, Assessment and Management of Fishing Capacity in the Adriatic Area of the Mediterranean (through the Adriamed Project in support of the General Fisheries Commission for the Mediterranean);

(c) The organization in October 2002 of an Expert Consultation entitled "Catalysing the Transition away from Overcapacity in Marine Fisheries";

(d) The initiation of a major three-year project on the management of tuna fishing capacity in 2002, implemented in collaboration with the tuna regional fisheries management organizations.

(d) Management of shared (transboundary and straddling) fish stocks

137. The Government of Norway, in cooperation with FAO, convened a Norway-FAO Expert Consultation on the Management of Shared Fish Stocks in Bergen in October 2002,[86] with the goal of enhancing the modalities and mechanisms for the management of shared fish stocks and improving the understanding of the problems involved. The impetus for holding the consultation lay in the fact that effective conservation and management of shared fish stocks, under article 63 (1) of UNCLOS, presents an ongoing challenge for States and regional fisheries management organizations or arrangements in their efforts to secure long-term sustainable solutions for these stocks. The Expert Consultation drew several important conclusions, including:

(a) There is a need for cooperative management arrangements to be resilient enough to be able to absorb unpredictable shocks stemming from natural variability, climate change or other unpredictable ecological or economic disruptions;

(b) The sharing of the benefits from the fisheries should not be restricted to allocations of total allowable catch, or the equivalent, to national fleets;

(c) Consideration should also be given to the use of what the Expert Consultation referred to as "negotiation facilitators", or "side payments", such as quota trades, or mutual access arrangements. These would allow a broadening of the scope for bargaining over allocations, assist in achieving compromises when there are differences in the management goals of cooperating States/entities, and enhance the flexibility and resilience of the cooperative arrangements over time;

(d) Problems of implementation and enforcement are far more complex for shared fisheries than those encountered with non-shared fisheries.

138. With respect to cooperative management for straddling fish stocks, under the United Nations Fish Stocks Agreement and article 63 (2) of UNCLOS, the Expert Consultation noted two critical issues: (a) the issue of new members or participants in regional fisheries management organizations or arrangements; and (b) what in fact constitutes a "real" interest of a State in a straddling stock fishery. The consultation reviewed approaches currently being taken to address the issue of new members or participants.

5. Whaling

139. The International Whaling Commission (IWC) held its fifty-fourth annual meeting in Shimonoseki, Japan, in May 2002 to consider, inter alia, the membership of Iceland; catch limits for commercial whaling; a revised management scheme; sanctuaries; catch limits for aboriginal subsistence whaling; status of whales; scientific permits; whale-killing methods and associated welfare issues; environmental research; and small cetaceans.

140. The Commission renewed its 1982 decision, which had come into force as from the 1985/86 seasons, that catch limits for all commercial whaling would be set at zero. Norway had lodged objections to the ban and had exercised its right to set national catch limits for its coastal whaling operations for minke whales. As in previous years, IWC did not adopt a proposal by Japan for an interim relief allocation of 50 minke whales for its coastal-based community whaling. The Commission also indicated that although it had endorsed a revised management procedure for commercial whaling, a number of issues, among them the specification of an inspection and observer system (the revised management scheme) ought to be completed before it would consider establishing catch limits other than zero. Nonetheless, the Commission agreed to new catch limits for several stocks subject to aboriginal subsistence whaling, such as eastern North Pacific gray whales (taken by those whose "traditional, aboriginal and subsistence needs have been recognized"); West Greenland fin whales (taken by Greenlanders); West Greenland minke whales (taken by Greenlanders); East Greenland minke whales (taken by Greenlanders); and humpback whales (taken by Saint Vincent and the Grenadines). Furthermore, despite agreement by the Scientific Committee that the bowhead whale stock was able to sustain harvest and acknowledgement of the cultural, nutritional and subsistence needs of both Alaskan Eskimos and the native peoples of Chukotka, a proposal to continue to include provision for such catches failed to obtain the necessary majority. Some of the countries that refused such allocation indicated that they believed that Japan should have also been allocated a subsistence-level whales catch for its coastal whaling communities. In addition, they believed that there was scientific uncertainty about the ability of the bowhead stock to sustain the requested levels.

141. Proposals to establish whale sanctuaries in the South Pacific and the South Atlantic failed to gain the three-fourths majority necessary for their adoption. Similarly, a proposal to change the provision for the Southern Ocean Sanctuary was not adopted. As to the status of whales, the Scientific Committee indicated that despite a long period of protection, several populations of great whales remained highly endangered and numbered 500 or less. These included all bowhead whale stocks apart from the Bering-Chukchi Beaufort Seas stock which numbered over 9,000; gray whales in the western Pacific (by contrast, those in the eastern Pacific numbered over 17,000); all stocks of northern right whales; and various stocks of blue whales. The Committee also indicated that some of these small Arctic bowhead populations had been subjected to direct catches outside IWC regulations, or had been killed by ship strikes or had been by-caught in fishing gear.

142. At a special meeting of the Commission held in Cambridge, United Kingdom, in October 2002, the Commission accepted an allocation of bowhead whales for aboriginal subsistence whaling to Alaskan Eskimos and the native peoples of Chukotka for 2003-2007. Although in Japan the Commission had rejected Iceland's

request to become a party to the Convention, in Cambridge, Iceland was allowed to join with a reservation on the moratorium on commercial whaling. A draft resolution proposed by Japan intended to forward discussions on an interim relief allocation for Japanese coastal whaling and arrive expeditiously at a solution was once again rejected by the Commission.

6. Marine and coastal biodiversity

143. Marine and coastal environments contain diverse habitats supporting an abundance of marine life. Marine biological diversity (biodiversity) in fact is greater in the sea than on land or in freshwater.[87] Some examples of marine and coastal communities include mangroves, coral reefs, seagrasses, algae, pelagic or open-ocean communities and deep-sea communities. Marine biodiversity is essential for human life: it produces a third of the oxygen that we breathe, provides a valuable source of protein and moderates global climate. Although the importance and value of marine biodiversity is widely recognized, our knowledge of marine biological diversity is far less extensive than our knowledge of terrestrial biodiversity.

144. UNCLOS recognizes the importance of marine life and provides for its conservation; for example, in the articles on the conservation of living resources in the exclusive economic zone (articles 61-67), in the high seas (articles 116-120), in the Area (article 145); and in the duty to take measures to protect and preserve rare and fragile ecosystems as well as the habitat of depleted and threatened species and other forms of marine life (article 194(5)). The Plan of Implementation of the World Summit on Sustainable Development calls for the maintenance of the productivity and biodiversity of important and vulnerable ecosystems, the implementation of international instruments and programmes such as the Jakarta Mandate, the Ramsar Convention on Wetlands, the International Coral Reef Initiative and the development and use of diverse approaches and tools. Conventions to protect biodiversity include the Convention on Biological Diversity, the Convention on the Conservation of Migratory Species and Wild Animals and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Convention on Biological Diversity — Jakarta Mandate

145. In 1998, the Fourth Meeting of the Conference of the Parties to the Convention on Biological Diversity adopted decision IV/5, containing a multi-year programme of work for the conservation and sustainable use of marine and coastal biological diversity, composed of four elements: the implementation of integrated marine and coastal areas; marine and coastal living resources, marine and coastal protected areas; mariculture; and alien species and genotypes. The Fifth Conference of the Parties, in its decision V/3, adopted further measures, including the incorporation of coral bleaching into the programme of work. In April 2002, the Sixth Conference approved the continued implementation of the specific work plan on coral bleaching and the elaboration and implementation of the work plan on the physical degradation and destruction of coral reefs (decision VI/3), requesting continued cooperation with the United Nations Framework Convention on Climate Change and strengthened collaboration between the Biodiversity Convention secretariat and regional seas conventions and action plans.

146. The Convention secretariat has held two meetings of an Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas to consider the values and

effects of marine and coastal protected areas and linkages between marine and coastal protected areas and sustainable use. The Expert Group proposed a framework for the sustainable management of marine and coastal biological diversity, including a network of highly protected areas covering areas both inside and outside of national jurisdiction, and recommended further research. In July 2002, the secretariat convened a meeting of an Ad Hoc Technical Expert Group on Mariculture in collaboration with FAO to evaluate the current state of scientific and technological knowledge on the effects of mariculture on marine and coastal biological diversity and to provide guidance on criteria, methods and techniques to avoid the adverse effects of mariculture on biodiversity, while enhancing any positive effects.

147. The Biodiversity Convention secretariat, in collaboration with the Division for Ocean Affairs and Law of the Sea, prepared a study of the relationship between the Convention on Biological Diversity and UNCLOS with regard to the conservation and sustainable use of the genetic resources of the deep seabed beyond the limits of national jurisdiction. The study reviews the provisions of the two Conventions as they relate to the conservation and sustainable use of these resources and concludes that whereas the provisions of the two instruments are complementary and mutually supportive regarding the conservation and sustainable use of marine biodiversity, there is an important legal lacuna with respect to commercially oriented activities relating to marine genetic resources in deep seabed areas beyond national jurisdiction. This lacuna will need to be addressed by the international community, given the increasing importance of the genetic resources in these areas and the risk of their overexploitation without due regard to conservation and equity imperatives.

Convention on the Conservation of Migratory Species and Wild Animals

148. The Convention on the Conservation of Migratory Species and Wild Animals (CMS or Bonn Convention) was concluded in 1979 and now has 81 parties. It cooperates with both CITES (see below) and the Convention on Biological Diversity.[88] At its 7th meeting, in September 2002, the Conference of the Parties expanded its scope of protection of marine migratory species by adding six species of great whales in appendix I and appendix II; the great white shark to both appendices; and the porpoise, six species of dolphins, the dugong, all populations of killer whale not already listed, the South American sea lion and fur seal, and the West African and Amazonian manatee to appendix II. Parties are required to adopt strict protection measures for appendix I species, which are in danger of extinction throughout all or a significant proportion of their range. Parties are furthermore required to undertake cooperative action at the regional level with regard to appendix II species (e.g. through regional agreements).

149. At the same meeting, the Conference of the Parties adopted resolution 7.3, on "Oil pollution and migratory species", in which it invited the parties to implement a monitoring process to assess the cumulative environmental impacts of oil pollution on migratory species. Because by-catch is a major cause of mortality of migratory species, the Conference called upon range States parties to address the problem through regional fisheries management organizations and agreements (recommendation 7.2). Regional cooperation was encouraged also with respect to small cetaceans and sirenians of Central and West Africa, in particular through the establishment of memoranda of understanding on those species and the

implementation of collaborative action thereon (recommendation 7.3), and on small cetaceans and dugongs of South-East Asia (recommendation 7.4).

150. Agreements to protect marine species adopted under the CMS Convention include: Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, which held its 1st meeting of the Parties in February/March 2002, when a Scientific Committee was established; Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas; 1999 CMS Memorandum of Understanding concerning the Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, which adopted a conservation plan at its 1st meeting in May 2002; Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia, which held its 1st meeting in January 2003; and Agreement on the Conservation of Albatrosses and Petrels.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

151. CITES entered into force in July 1975 and now has more than 115 member States. The Convention protects biodiversity by banning commercial international trade in an agreed list of endangered species (annex I) and by regulating and monitoring trade in others that might become endangered (annex II). At the twelfth session of the Conference of the Parties, in November 2002, landmark decisions were taken to add to annex II the big-headed turtle, the yellow-headed turtle, the Malaysian giant turtle, the basking and whale sharks, and the entire genus of seahorses, and to retain the bottlenose dolphin in appendix II, with the addition of an annotation of zero export quota for live specimens of Black Sea bottlenose dolphin removed from the wild and traded for primarily commercial purposes. A proposal to transfer most populations of Minke and Bryde's whales from appendix I to appendix II, thus allowing for the resumption of trade, was rejected. A proposal to include the Patagonian and Antarctic toothfish in appendix II was withdrawn, although the Parties adopted a "voluntary resolution" to improve international monitoring of harvest and trade of toothfish and agreed to assist the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in its efforts to eliminate the illegal fishing of toothfish. This was the first instance of the CITES Conference of the Parties assuming an active role in dealing with resources regarded as commodities and not just wildlife.

Ramsar Convention on Wetlands

152. The Convention on Wetlands, of International Importance especially as Waterfowl Habitat, signed at Ramsar, Iran, in 1971, provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The definition of wetlands includes areas "with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres", which includes most coastal zones around the world. The Conference of the Parties, at its 8th meeting (Valencia, Spain, November 2002), adopted the "Principles and guidelines for incorporating wetland issues into integrated coastal zone management" (resolution VIII.4). The Third Joint Work Plan between the Ramsar Convention and the Convention on Biological Diversity for the 2002-2006 period, was approved by the Ramsar

Standing Committee in December 2001 and endorsed by the Conference of the Parties to the Biodiversity Convention at its 6th meeting (The Hague, April 2002).

International Coral Reef Initiative

153. Coral reefs are often called "rainforests of the sea" because of the remarkable diversity of life they support. As one of the most complex ecosystems on Earth, coral reefs are home to over 4,000 different species of fish, 700 species of coral and thousands of other plants and animals. Unfortunately, despite the committed efforts of individuals and groups to save these fragile and valuable ecosystems, coral reefs are threatened all over the world.

154. A new report entitled "Status of coral reefs of the World 2002", the third in a series of biennial updates, released on 10 December 2002,[89] highlights evidence that human efforts may stop reef decline, provided they are supported by sufficient political will. The International Coral Reef Initiative (ICRI) was established to implement the recommendations of chapter 17 of Agenda 21, in order to stop and reverse the global degradation of coral reefs and related ecosystems. The ICRI partnership approach has mobilized Governments and other stakeholders in an effort to improve management practices, increase capacity and political support and share information on the health of these valuable and vulnerable ecosystems. The Coordination and Planning Committee, the advisory body of the ICRI secretariat, met in Cancún, Mexico, in June 2002, following the second Regional Workshop of ICRI for the Tropical Americas: Improving Reef Conditions through Strategic Partnerships. The workshop reviewed best management practices, in particular in the areas of sustainable tourism, fisheries and local communities, in the context of the ICRI Regional Agenda for Action.

155. In recognition of the gravity of threats to coral reefs, the Johannesburg Plan of Implementation recommended the development of national, regional and international programmes to halt the loss of marine biodiversity, including coral reefs, as well as the implementation of the programme of action developed by ICRI. The General Assembly, in its resolution 57/141, called upon States to take measures for the protection and preservation of coral reefs and to support international efforts to this end, in particular the measures outlined in decision VI/3 of the Conference of the Parties to the Convention on Biological Diversity (see para. 145 above).

B. Protection and preservation of the marine environment

1. Reduction and control of pollution from vessels

156. In its resolution 57/141, the General Assembly reiterated its concern at the adverse impacts on the marine environment from ships, including pollution, in particular through the illegal release of oil and other harmful substances, as well as physical impacts on coral. It encouraged States to ratify or to accede to international agreements to prevent, reduce, control and eliminate pollution from, inter alia, ships, anti-fouling systems on ships, as well as to agreements providing for compensation for damage resulting from marine pollution. The World Summit on Sustainable Development had also invited States to become parties to and implement IMO conventions and protocols and other relevant instruments relating to the enhancement of maritime safety and protection of the marine environment from marine pollution and environmental damage caused by ships, including the use of

toxic anti-fouling systems, and had urged IMO to consider stronger mechanisms to secure the implementation of IMO instruments by flag States.

(a) Harmful aquatic organisms in ballast water

157. Thousands of marine species are carried daily in ships' ballast water, on voyages that may transport them far away to new environments. While many do not survive, those that do can establish themselves and multiply into pest proportions, with resulting severe impacts for marine biodiversity and often at a significant cost to the community. UNCLOS article 196 requires States to take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the intentional or accidental introductions of species, alien or new, to a particular part of the marine environment. Both the World Summit on Sustainable Development and the General Assembly in its resolution 57/141 called upon States to accelerate the development of measures to address the problem of invasive alien species in ballast water and urged IMO to finalize the draft international convention on the control and management of ships' ballast water and sediments.

158. IMO is taking three measures to address the problem of invasive species in ballast water: (a) designing suggestions for ballast water and sediment management options in new ships; (b) development of an international convention on the control and management of ships' ballast water and sediments; and (c) the GEF/UNDP/IMO GloBallast Programme, which is partly aimed at helping member States to prepare for the implementation of the convention when it enters into force. Work on the draft Convention is to be finalized this year in order to enable its adoption at a Diplomatic Conference on Ballast Water Management in early 2004. The most recent draft text[90] consists of a preamble, 22 articles and several regulations, based on a two-tier approach, with mandatory requirements applicable in all areas and special requirements applicable only in certain areas. Outstanding issues include the choice of one or more ballast-water treatment standards and whether the exemptions are compatible with relevant UNCLOS articles. The success of the Convention will depend upon the development of ballast-water treatment techniques that are safe for the ship and crew, environmentally acceptable, practical, cost-effective and biologically effective.

(b) Reception facilities

159. Only a small number of official reports on the alleged lack of adequate reception facilities for waste (such as oily waste or garbage) are received each year, despite evidence from industry organizations that the provision of adequate reception facilities in many ports is apparently lacking. IMO circular MEPC/Circ.349 recommends that reports on alleged inadequacies of port reception facilities be forwarded to the flag State and the port State and that the flag State notify IMO.

160. UNEP, IMO and the Basel Convention secretariat have agreed to strengthen cooperation at the regional level to develop and implement a plan of action to address marine litter and debris, port reception facilities and waste management at the local government level.[91] At the IMO/UNEP Workshop on Marine Pollution Prevention and Environmental Management in Ports in the Wider Caribbean Region (Ocho Rios, Jamaica, May 2002), the participants recommended the establishment of port reception facilities to receive ship-generated waste in the region without

delay, and to give effect to the designation of the region as a special area under annex V. Problems to be overcome included transportation of wastes, the building and operation of landfills, and the construction and operation of treatment facilities. Assistance was requested in the design of facilities and process requirements.[92] GEF funds a project on ship-generated waste management in the Caribbean.

(c) Regional initiatives to prevent, reduce and control pollution from vessels

161. At the same IMO/UNEP workshop, participants recommended an international approach for the regulation of waste waters and solid wastes from cruise ships; standards for the management of sewage and other wastes generated on board cruise ships; and the implementation of those standards (e.g., monitoring of waste discharges). The introduction of an "environmental tax" on tourists on board cruise ships was suggested as a means of funding programmes to enhance coastal water quality, under the joint Organization of the Eastern Caribbean States/GEF Solid and Ship-Generated Waste Management Project.[93]

162. HELCOM notes that the accident involving the *Baltic Carrier* in March 2001, resulting in the discharge of 2,700 tonnes of heavy fuel oil to the Baltic Sea, highlighted the increased risk associated with dense traffic in the Baltic Sea, which was expected to increase by 40 per cent in the future. The North Sea States, at the Fifth International Conference on the Protection of the North Sea (March 2002), agreed on the need for greater cooperation between North Sea States and at the European Union level to enforce the internationally agreed rules and standards for the prevention, reduction and control of pollution from ships, as well as the need to increase the detection of illegal discharges and to improve the investigation and prosecution of offenders. They agreed to create a network of investigators and prosecutors to improve cooperation in the different stages of the enforcement process.

163. The sinking of the oil tanker *Prestige* off the coast of Spain resulted in severe oil pollution of the coasts of Spain, Portugal and France. The European Commission proposed new legislation in early 2003 introducing penal sanctions against any party (not only the shipowner, but also the owner of the cargo, the classification society or any other person concerned) causing a pollution incident through grossly negligent behaviour, as well as specific measures dealing with the issue of operational (deliberate) discharges from ships, including provisions on the gathering of evidence and the prosecution of offenders. The Commission also reported that it had indicated its concerns with regard to the international legal restrictions relating to coastal States' jurisdiction over ship-source pollution. It has called for further analysis of various measures which could achieve better possibilities for States to protect their coasts and coastal waters against ships representing environmental hazards.

(d) Emergency response

164. UNCLOS requires States to take measures for dealing with emergencies and to establish contingency plans for responding to pollution incidents. UNEP reported on the progress it had made, together with IMO and several regional seas conventions and action plans, in strengthening their collaborative approach to issues of oil-spill preparedness and response, in particular in the establishment of regional systems for cooperation in preparedness for and response to oil spills and in the implementation of regional training courses on response to oil spills. A joint IMO/UNEP Forum on

regional arrangements in emergency response to marine pollution was held from 30 September to 2 October 2002. The proposed objectives of the forum were: (a) exchange of experiences and information; (b) general overview of priorities and major achievements; (c) identification and discussion of issues of common concern to the different regions; (d) recommendations for future interregional cooperation; and (e) identification of areas for possible harmonization of procedures and collaboration.

165. The Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, on 25 January 2002, adopted a new Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea. Collaboration between the Mediterranean Action Plan and the North-west Pacific Action Plan has been very active in the field of oil-spill preparedness and response. The final draft of a regional oil-spill contingency plan for the North-west Pacific has been completed and will be submitted for approval to the next intergovernmental meeting.

166. Recent developments in other regions include the convening, during 2001 and 2002, jointly with IMO, of two meetings of national experts on the Protocol Concerning Cooperation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region (Emergency Protocol). GEF reported that a project for the small island developing States of the Western Indian Ocean, through the World Bank, contributed to their capacity to address oil spills and enhanced their activities under the Emergency Protocol. The Facility also funds an oil pollution management project for the south-west Mediterranean Sea. IMO, in close cooperation with PERGSA, has funded the preparation of a regional action plan for the development of national systems and regional and subregional mechanisms to prepare for and respond to major oil spills in the Red Sea and Gulf of Aden. While some initial funding through the IMO Integrated Technical Cooperation Programme will allow this plan to be started, IMO will work with PERSGA to find donors to support the full implementation of the action plan.

2. Transboundary movement of hazardous wastes

167. At their 6th meeting, in December 2002, the Conference of Parties to the Basel Convention agreed to establish a mechanism to assist parties in implementing and complying with the provisions of the Convention (decision VI/12).[94] A committee composed of 15 experts will assist parties in implementing the Convention in a "simple, flexible, non-binding" and confidential fashion. The committee can examine cases submitted by: a party that concludes that, "in spite of its best efforts, it was unable to fully implement or comply with its obligations under the Convention"; a party that is affected by the non-compliance of another party; or by the Convention secretariat if it deems that a party has difficulties complying with the Convention. Unless the party agrees otherwise, the information will be considered in a closed meeting. The committee will work through cooperation among the interested parties, consultation with other bodies of the Convention, the assistance of outside expertise and consultation with the Convention secretariat in determining the root causes of the problem. It may provide a party with advice, non-binding recommendations and information relating to the establishment and/or strengthening of its regulatory regime; facilitation of assistance, in particular access to financial and technical support; elaboration of voluntary compliance action plans; and any follow-up arrangements. The committee may also review general issues of

compliance and implementation of the Convention and may recommend that the Conference of the Parties take additional measures regarding specific cases.

168. The Conference of the Parties also adopted a "Strategic Plan for the Implementation of the Basel Convention (to 2010)" (decision VI/1). It agreed to enlarge the scope of the Technical Cooperation Trust Fund and adopted guidelines on emergency assistance, compensation, and the development of capacity-building, transfer of technology and the development of measures to prevent accidents and damage to the environment caused by the transboundary movement of wastes and their disposal (decision VI/11). In decision VI/15, entitled "Basel Protocol on Liability and Compensation", the parties to the Convention are called upon to become a party to the Protocol at the earliest opportunity.

169. Furthermore by decision VI/24, the Conference adopted Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships.[95] The guidelines note that various materials historically used in the construction and operation of ships will become hazardous wastes, for example: asbestos, PCBs and substrates derived from the normal operation of ships, such as oil residues and products containing heavy metals released during the extraction phase of the dismantling process. The guidelines include principles for the environmentally sound management of ship dismantling, good practice in environmental control procedures at ship-dismantling facilities, good practice in the design, construction and operation of ship-dismantling facilities and ways of achieving protection of the environment and human health. Measures to minimize hazardous materials aboard a ship before it is sent to a recycling facility are not addressed in the guidelines, since IMO is dealing with this issue. Moreover, ILO is addressing health and safety issues relating to ship recycling. UNEP also reported on discussions between its Regional Seas Unit and the Basel Convention secretariat regarding residue reception facilities for the recycling of ships.

170. IMO, the Division for Ocean Affairs and Law of the Sea and the secretariat of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) were requested by the technical and legal working groups of the Basel Convention to provide information on the applicable legal regime in MARPOL 73/78, UNCLOS and the London Convention regarding ship dismantling and on relevant activities. Views were also requested on a number of questions, including at what point a ship destined for dismantling ceased to be a ship and became a waste; what criteria could be used to determine the point at which a ship became a waste, and especially the intention to dispose of the ship; and which State had the responsibility to ensure compliance with the relevant international conventions during the voyage of the ship to the dismantling facility. The Legal Working Group of the Basel Convention, at its fifth session (May 2002), considered the submissions received from IMO and the Division[96] and decided to request the parties, signatories and others to provide their views on the same questions by 31 December 2002. Views on the legal aspects are to be submitted to the Conference of the Parties at its 7th meeting.

C. Protection of vulnerable marine ecosystems

171. As the oceans become progressively degraded, one of the most urgent issues is how best to protect the most sensitive and vulnerable areas of the sea. In a

discussion of the protection of vulnerable marine ecosystems, it would appear necessary, first, to define the terms; secondly, to identify examples of the most vulnerable marine ecosystems; thirdly, to list the most important threats; fourthly, to consider the binding and non-binding instruments applicable to those threats; and finally, to enquire what more can be done.

1. Definition

172. A marine ecosystem may be defined as the sum total of marine organisms living in a particular sea area, the interactions between those organisms and the physical environment in which they interact. A vulnerable marine ecosystem could be defined as one that is particularly susceptible to disruption, to damage or even to destruction due to its physical characteristics, the activities and interactions of the organisms therein and the impacts they suffer from human activities and the surrounding environment. While some ecosystems may be fairly resilient and recover quickly from external shocks, others may be fragile and collapse at either slight or repeated stress.

173. UNCLOS adopts a fairly broad approach in dealing with ecosystems requiring special protection. While States are under a duty to protect the marine environment and conserve marine life generally, special measures may be needed to protect certain types of ecosystems. In article 194, paragraph 5, UNCLOS requires States to take the measures necessary to protect and preserve rare or fragile ecosystems, as well as the habitat of depleted, threatened or endangered species and other forms of marine life. For the purposes of the present report, the phrase "vulnerable marine ecosystems" will be used to encompass all such types of ecosystems.

174. The "Guidelines for the identification and designation of particularly sensitive sea areas" developed by IMO describe "vulnerable marine areas" as areas that require special protection because of their high susceptibility to degradation by natural events or human activities. For example, biotic communities associated with coastal habitats may have a low tolerance to changes in environmental conditions, or may exist close to the limits of their tolerance. Such ecosystems may suffer natural stresses such as meteorological events or prolonged emersion; anthropogenic stresses such as pollution, excessive reduction in salinity, or an increase in turbidity from watershed mismanagement; or a combination of the two. The intensity and varied types of exposure to such stresses determine whether there is total, partial, or absence of recovery for the ecosystem. Oceanographic or meteorological factors also determine or intensify the vulnerability of an area, for example, by causing the concentration or retention of harmful substances in the waters or in the sediment of the area, or by otherwise exposing the area to harmful substances.[97] Ecosystems already subject to environmental stresses due to natural phenomena or human activities may need to be afforded special protection from further stress arising from all activities.

175. In the IMO guidelines, "uniqueness or rarity" and "critical habitats" are criteria for the identification of particular sensitive areas. Unique or rare ecosystems are defined as habitats of rare, threatened or endangered species that occur only in one area or ecosystems that occur in few locations or have been depleted across their range. Critical habitats include sea areas that may be critical habitats for fish stocks or rare or endangered marine species. These include regions of ocean space characterized by distinct bathymetry, hydrography, productivity and trophically

dependent populations, which function as critical habitats to certain fish species and other marine species that breed, rest, shelter or feed in such areas. In fact, ecological impacts caused by fisheries operations coupled with general environmental degradation, such as eutrophication of coastal waters, toxic pollution or global warming, are likely to have adverse effects on these ecosystems that may affect their productivity and ultimately their ecological balance.

2. Examples of vulnerable marine ecosystems

176. In its report entitled "A Sea of Troubles", GESAMP identified a number of vulnerable areas and systems: coral reefs, wetlands, seagrass beds, coastal lagoons, mangroves, shorelines, watersheds, estuaries, small islands, continental shelves and semi-enclosed seas.[98] Other examples include: habitats of endangered species, spawning and nursery areas, feeding grounds, seamounts, hydrothermal vents and polar regions. Since vulnerability is a function of the specific physical as well as ecological characteristics of an area, ecosystems that are not generally considered vulnerable may be considered as such in specific locations. The following is a non-exhaustive list of particular ecosystems generally considered to be vulnerable.

177. *Mangroves*, woody plants that grow at the interface between land and sea in tropical and subtropical latitudes, form part of some of the most important ecosystems of coastal areas.[99] In addition to their role in the protection of coastlines from erosion, storm damage and wave action, they possess a natural ability to host rich assemblages of marine species, including valuable fish species and marine mammals. More significantly, mangroves may play a special role as a nursery for juvenile fish and refuge for the early stages of adult fish that are found in other habitats, such as coral reefs or seagrass beds. Such a density of juvenile fish in mangrove waters has been attributed mainly to three underlying causes: (a) an abundance of appropriate food for juvenile fish in mangrove estuaries; (b) minimal risk of predation by large fish due to the reduced visibility in turbid mangrove waters; and (c) structural complexity of mangroves, which affords excellent shelter and protection for juveniles.[100]

178. *Seagrasses* are closely associated with mangrove habitats in many parts of the world. Although seagrass beds often occur in close proximity to mangroves, the two habitats may not be closely coupled. Seagrass also helps support fish populations by serving as food and critical habitat for fish. In addition, a number of fish species may use seagrass habitats as nursery areas.[101]

179. *Warm-water coral reefs* are tropical shallow-water ecosystems that flourish best at temperatures of 25°C and 29°C, and therefore tend to be restricted mainly to marine areas between latitudes 30° N and 30° S. They are among the most biologically productive and diverse of all natural ecosystems, supporting sometimes as many as 3,000 species. The great number of holes and crevices in a reef provide abundant shelter and important nurseries for fish. In addition, the standing crop of fish populations on reefs may reach 5 to 15 times the size of crops of productive North Atlantic fishing grounds and are able to provide 5,000 kg per fisher per year. The high productivity of coral reef ecosystems is believed to result principally from their freely flowing water, efficient biological recycling and high retention of nutrients.[102]

180. *Seamounts* are defined generally as isolated elevations in areas under national jurisdiction or on the high seas, which do not rise above the sea surface. Existing

assessments show that they have high levels of endemic species, together with certain other high seas underwater features, such as deep-sea ridges and plateaus. Of 921 species of fish and benthic macrofauna collected on 24 seamounts in the Tasman and south Coral seas, between 16 per cent and 36 per cent were new to science and many, if not most, were potentially endemic to the individual seamounts or seamount clusters on which they were collected. Information currently available indicates that the total number of species endemic to deep-sea seamounts may range to tens of thousands or more, thus potentially making these ecosystems the most prolific and diverse on the planet.[103]

181. *Hydrothermal vents* are created at seafloor spreading centres, where cold water penetrates into the seafloor through fissures. After the water becomes superheated near the roof of shallow magmatic chambers beneath the ridge axis and enriched with metal ions and other substances leached from surrounding rock, it is expelled in highly localized sites known as hydrothermal vents. The plumes of mineral-laden water are known as "smokers" and the minerals may precipitate out to form large chimneys. In addition to venting via chimney structures, heated water may also appear as diffuse flow around the vent field. The sulphide in the vent fluid is the primary substance supporting the unique vent ecosystem, through chemosynthesis. Hydrothermal vents are found on active spreading ridges, in subduction zones, fracture zones, back-arc basins and on seamounts. The fauna of hydrothermal vents is vastly different from the surrounding deep-sea benthos. Primary production at vents is reliant upon microbes having the ability to use the reduced inorganic compounds in vent fluids to synthesize organic matter. Hydrothermal vents may be considered as isolated "biological" islands. About 90 per cent of the species described from vents to date are endemic.

182. *Polar regions*. As recognized by UNCLOS, ice-covered areas are characterized by particularly severe climatic conditions, creating unique environmental problems. Due to the extremely low temperatures and the presence of ice cover for most of the year, pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance.[104] Both the Arctic and the Antarctic ecosystems are particularly vulnerable to changes in environmental conditions or to resource exploitation, as it is difficult to remove contaminants or for damaged organisms to regenerate. The Arctic is a marine area dominated by a deep, ice-covered central ocean with surrounding shallow coastal seas. The shelf seas, ice edges and polynyas — open-water areas in areas of sea ice — are seasonally some of the most biologically productive ecosystems in the world. Unfortunately, depositions of atmospheric contaminants thousands of miles from their sources have led to high levels of toxic chemicals in wildlife and even human beings. The circulation and subsequent melting of ice on shelf areas cause contaminants to be redistributed to deep ocean sediments and other shelf seas. In contrast, the Antarctic consists of a frozen land mass surrounded by the Southern Ocean, which represents 10 per cent of the world's sea area. Relatively little of this area is permanently covered by ice. Instead vast areas are subject to a highly seasonal ice cover which forms in winter and melts the following spring. This seasonal ice zone includes all of the areas of continental shelf and slope around the Antarctic continent. Biological diversity in the Antarctic ecosystem is low.

183. *Vulnerable marine ecosystems and fisheries conservation*. While international fisheries governance has focused its attention on reducing fishing efforts, improving compliance with and enforcement of conservation and management measures

established by regional fishery bodies through the adoption of legally binding or voluntary instruments, the international community has yet to devote sufficient attention to the protection of vulnerable marine ecosystems from the adverse impact of fishing and non-fishing activities, an important step towards fisheries conservation within an ecosystem-based management of marine capture fisheries. Such steps may include initiatives to reduce land-based sources of marine pollution and may involve, in addition to fishery regulatory measures, such as temporary closed areas and closed seasons, the establishment of: flexible exclusion zones to protect juvenile fish; reserved areas for small-scale fisheries; marine protected areas to preserve critical habitats; and ultimately a global moratorium on commercial fishing around high seas seamounts.

184. For the purpose of fisheries conservation, vulnerable marine ecosystems could be identified as particular regions of ocean space characterized by distinct bathymetry, hydrography, productivity and trophically dependent populations which function as critical habitats to certain fish species and other marine species that breed, rest, shelter or feed in such areas. Ecological impacts of fisheries operations coupled with general environmental degradation, such as eutrophication of coastal waters, toxic pollution, or global warming, are likely to have adverse effects on these ecosystems and in some circumstances may affect their capacity to support sustainable fisheries. These ecosystems encompass mangroves, reefs and high seas seamounts.

3. Threats to vulnerable marine ecosystems

185. Many competing uses of coastal zones and ocean areas, such as land-based activities, fishing, mariculture, shipping activities and the exploration and exploitation of minerals, as well as natural phenomena, may directly impact vulnerable marine ecosystems. The nature and intensity of pressures vary from place to place, as does the vulnerability of different ecosystems. Yet it is evident that the nearer one gets to land, the greater the damage to the sea, its life and resources. The crises are deepest where the waters are shallow. It is here that pollution is at its worst, habitats are most readily destroyed and much of fisheries depletion takes place; alteration and destruction of habitats and ecosystems is widespread. Rivers, lakes, estuaries and coastal waters are the hardest hit; and wetlands, mangroves, seagrass beds and coral reefs are particularly vulnerable. According to GESAMP, at least half of the world's mangrove forests were lost over the past century and 70 per cent of coral reefs are threatened.[105] In many places fisheries are affected, as spawning and nursery grounds are degraded. The open oceans suffer some contamination and ecological damage, but compared to the coastal areas they are still in a relatively healthy state.[106]

(a) Land-based activities

186. Land-based activities are responsible for 80 per cent of the pollution of the oceans, affecting the most productive areas of the marine environment. Pollution resulting from sewage, agricultural and industrial chemicals, and industrial organic wastes has caused very serious, pervasive and continuous degradation of coastal ecosystems. Furthermore, coastal development has brought about the ruin of increasingly large stretches of the world's coasts and reduced the extent of natural ecosystems. For example, large areas of lagoons, estuaries and mangroves have been destroyed to create ports or real estate or agricultural land in land-scarce regions.

Coastal zone damage is particularly acute in tropical developing countries where both natural and economic conditions contribute to high vulnerability of these areas. The growth in population and migration in coastal cities and regions is leading to increases in municipal and industrial discharges and landfill, mangrove clearing, coral mining and other construction-related damage.[107]

187. In some developing countries, siltation of coastal areas is becoming severe as a result of inland deforestation, the construction of lumber roads and land-clearing. Intensified agriculture is also contributing to an increase of amounts of pesticides and herbicides in coastal waters. Moreover, intensive forms of aquaculture have themselves become a source of pollution. In shrimp farming, the clearing of mangroves, the extensive harvesting of wild larvae and the indiscriminate use of antibiotics to control diseases are negatively affecting important commercial fish stocks.[108] In addition, deforestation, soil erosion and the diversion of watercourses increase sedimentation rates along the coast and adversely affect shorelines and habitats. Wetlands, deltaic habitats and bottom-dwelling communities (e.g. coral reefs, seagrass beds) can be significantly affected by changes in sediment flows.

188. Land-based sources of pollution originate from: (a) sewage loaded with inadequately treated domestic waste water; (b) physical alterations and destruction of habitats resulting from the increase of populations and economic activities in coastal areas leading to alterations of coastal zones and marine areas; (c) nutrients can lead to eutrophication and changes in species diversity, excessive algal growth, dissolved oxygen reductions and increased prevalence of toxic algal blooms; (d) persistent organic pollutants associated with industrial processes, product use and applications, waste disposal, leaks and combustion of fuels and waste materials; (e) radioactive substances resulting from the production of energy, the reprocessing of spent fuel, military operations, nuclear testing, medical applications and other operations associated with the management of radioactive wastes and the processing of natural materials by industrial processes; (f) heavy metals from various industrial point sources; (g) sediment mobilization resulting from construction activities, forestry operations, agricultural practices, mining practices, hydrological modifications, dredging activities and coastal erosion; (h) litter entering the marine and coastal environment from poorly managed or illegal waste dumps adjacent to rivers and coastal waters, windblown litter from coastal communities, resin pellets used as feedstock and dumping of garbage into the coastal environment; and (i) oils — hydrocarbons from operational and accidental discharges and emissions from exploration, exploitation, refining and storage facilities, urban, industrial and agricultural run-off and inappropriate disposal of used lubricating oils.

189. The health of mangrove ecosystems is being adversely affected by stress induced by natural causes (e.g., prolonged dry periods, changes in the frequency and duration of tidal flooding or in salinity) and disruptions associated with human activities, particularly those related to land-based sources of pollution, including from metals, organic effluents and oil, as well as pond culture and wide-scale mangrove destruction. The damage to mangroves directly impacts on fishery resources and the lives of those who depend on them.[109]

190. Similarly, coral reefs are also facing stress from both natural and human-induced sources. Aside from coral bleaching due to climate change, dredging, sewage discharges and thermal pollution resulting from the release of power-plant cooling water have destroyed coral reefs in various parts of the world. Chemical

pollutants originating offsite have a number of effects on coral reef ecosystems: killing mature plants and animals; interfering with physiological processes, particularly reproduction; aborting larval development; rendering areas unsuitable for recruitment or settlement of new individuals; and smothering or changing the texture of the habitat.[110] Fishing with explosives and coral mining to meet the demand for lime in some countries have also created wastelands of once productive reefs.[111]

(b) Overexploitation of fish stocks and destructive fishing practices

191. Overfishing removes vast amounts of biomass from the middle of the food chain and destructive fishing methods add to the crisis. Intensive forms of aquaculture have become a source of pollution. In shrimp farming, the clearing of mangroves, the extensive harvesting of wild larvae and the indiscriminate use of antibiotics to control diseases are negatively affecting important commercial fish stocks.[112] In addition, certain fish practices used by small-scale and artisanal fishers fishing on tropical reefs are having severe environmental effects. These practices include the use of dynamite and poisons as well as techniques in which fish are driven into nets by swimmers pounding the coral reefs. Such fishing techniques can cause direct physical damage to the reef substratum. Local populations are forced to resort to the highly destructive techniques when faced with increasing scarce resources and lack of alternative opportunities for employment.[113]

192. In the case of seamounts, the fauna and flora of such ecosystems as well as other underwater features, particularly those that are not migratory, are also threatened by human activities. Bottom-trawl fishing is considered to be the greatest danger to seamount ecosystems due to the impact of fishing gear on fish habitat structure. Trawls are non-selective gears which can take in considerable by-catch, and their interactions with the sea bottom may lead to irreversible modifications of bottom ecosystems. The expertise, technology and markets are improving for these fisheries and, given the current trend of increasing demand for and restricted supply of fisheries products worldwide, the scale of fishing on seamounts and other deep-sea areas is likely to grow in coming years, at the expense of the unique and endemic species inhabiting those areas.[114]

(c) Sea-based activities

193. Shipping-related activities can also constitute an environmental hazard to the marine environment in general, and even more so to vulnerable ecosystems. Environmental hazards associated with shipping may include operational discharges; accidental or intentional pollution; and physical damage to marine habitats or organisms as well as the introduction of alien species. In the course of both routine operations and accidents, ships may release a wide variety of substances either directly to the marine environment or indirectly through the atmosphere. Such pollutants include oil and oily mixtures, noxious liquid substances, sewage, garbage, noxious solid substances, anti-fouling paints, foreign organisms and noise. Moreover, ships may cause harm to marine organisms and their habitats through physical impact.[115]

194. Other sea-based activities which can have an adverse impact on marine ecosystems include the exploration and exploitation of non-living marine resources, such as oil and gas, and dumping at sea. Deep-sea trenches have been proposed as

suitable sites for the disposal of such wastes as mining tailings, dredge spoils and excess industrial CO_2, owing to their isolation and supposed ability to retain waste materials. However, there are unknown risks, as trenches are tectonically active. The main direct threat to trench fauna is through poisoning by toxic chemicals. There would be limited flushing from the trench and microbes might be able to erect only a limited defence, especially when faced with new substances.[116]

(d) Marine scientific research

195. Hydrothermal vents are potentially threatened by human activities, including marine scientific research.[117] Impacts of marine scientific research at hydrothermal vents may lead to habitat loss and organism mortality as a result of: (a) removing chimneys and rocks for geological investigations or chemical sampling; (b) environmental manipulations such as drilling; (c) clearing of fauna, e.g., for experimental studies on recolonization or collecting fauna for biodiversity or population studies; (d) transplanting fauna between locations; (e) placement of instrument packages that may disturb fauna and change water flows; (f) observation, e.g., deleterious effects of light on photosensitive organisms; and (g) the use of manned submersibles and remotely operated vehicles that may damage the fauna by landing on them or causing damage by the use of thrusters.[118]

(e) Global climate change

196. Evidence is emerging that rapid climate change caused by global warming has affected vulnerable ecosystems and marine biodiversity, leading, inter alia, to coral bleaching and the loss of other fragile habitats. Experiments[119] reveal that practically all marine animals living in some of the coldest parts of the world are extraordinarily sensitive to very small increases in ambient temperature. Warming has altered habitats and ecosystems and forced marine species around the world to move into new ranges. Reports indicate that salmon, reef fish and other species are moving towards the poles in response to warming sea temperatures.[120] A predicted rise in sea temperature of just 2°C to 3°C over the next 100 years would entail for the ocean around the Antarctic a loss of a large amount of valuable marine wildlife.[121] Low-lying countries, including small island developing States and their atolls, would be particularly threatened by a rise in sea levels.

4. Legal and policy framework for the protection of vulnerable marine ecosystems

(a) Global instruments (binding or recommendatory)

Instruments providing for the protection of particular species and or specific areas

197. The *United Nations Convention on the Law of the Sea* provides a global framework for the protection and preservation of the marine environment. Article 192 of UNCLOS establishes a general obligation for States to protect and preserve the marine environment. Article 194, paragraph 5, calls upon States to "protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life". These ecosystems may be threatened by pollution from: land-based sources (article 207); seabed activities subject to national jurisdiction and in the international seabed area (the Area) (articles 208 and 209); dumping (article 210); vessels (article 211); and the atmosphere (article 212). In addition, article 234 of UNCLOS provides for the rights

of coastal States to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone.

198. Furthermore, UNCLOS requires States to conserve and manage marine living resources within areas under national jurisdiction and beyond and to protect and preserve the marine environment. Under article 62 (4), in the exclusive economic zone, the coastal State may, inter alia, regulate seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used; and fix the age and size of fish and other species that may be caught and take any other measures necessary for conservation, including moratoria and closed seasons. On the high seas, UNCLOS requires States to cooperate with each other in the conservation and management of living resources, including in relation to straddling fish stocks and highly migratory fish stocks. Conservation measures must be designed, on the best scientific evidence available, to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, and to maintain and restore populations of associated or dependent species. With respect to the protection and preservation of the marine environment in the Area, article 145 of the Convention requires the Authority to establish rules, regulations and procedures to ensure the effective protection of the marine environment, the protection and conservation of the natural resources of the Area and the prevention of damage to its flora and fauna from harmful effects that may arise from activities in the Area.

199. *Chapter 17 of Agenda 21 of the 1992 United Nations Conference on Environment and Development* (UNCED) elaborates upon the provisions of UNCLOS, updates them and sets out a plan of action for their implementation. It reiterates the need to protect and preserve vulnerable marine ecosystems. With respect to areas under national jurisdiction, Agenda 21 recommends to coastal States the conservation and restoration of altered critical habitats and the adoption of measures aimed at maintaining the biological diversity and productivity of marine species and habitats, including inventories of endangered species and critical coastal and marine habitats.[122] It requests international shipping to ensure respect of areas designated by coastal States, within their exclusive economic zones, consistent with international law, in order to protect and preserve rare or fragile ecosystems, such as coral reefs and mangroves. On the high seas, UNCED requires States to preserve marine habitats and other ecologically sensitive areas.

200. The *1995 United Nations Fish Stocks Agreement*,[123] although primarily concerned with the conservation and management of straddling fish stocks and highly migratory fish stocks, provides for the protection of species belonging to the same ecosystem as the target stocks. It requires that fishing States minimize pollution, waste and the adverse impacts of fishing on associated or dependent species, in particular endangered species, through the development and use of selective, environmentally safe and cost-effective gear and techniques. States must apply widely the precautionary approach and develop data-collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment. They must also adopt plans to ensure the conservation of such species and to protect habitats of special concern.

201. Similarly, the *1995 FAO Code of Conduct for Responsible Fisheries* establishes as one of its general principles the protection and rehabilitation of all critical

fisheries habitats, in marine and freshwater ecosystems, such as wetlands, mangroves, reefs, lagoons and nursery and spawning grounds. In that connection, it stresses that particular effort should be made to protect such habitats from destruction, degradation, pollution and other significant impacts resulting from human activities that threaten the health and viability of fishery resources. It invites States and subregional and regional fisheries management organizations and arrangements, within their respective competences, to ensure that fishery resources and habitats critical to the well-being of such resources which have been adversely affected by fishing or other human activities are restored.

202. From the broader perspective of protecting all biodiversity, the *1992 Convention on Biological Diversity* requires that, for in situ conservation, Contracting Parties rehabilitate and restore degraded ecosystems and promote the recovery of threatened species through the development and implementation of plans and other management strategies. They must adopt measures for the protection of threatened species and support local populations in developing and implementing remedial action in degraded areas where biological diversity has been reduced. They are furthermore required to regulate or manage biological resources important for the conservation of biological diversity to ensure their conservation and sustainable use and to rehabilitate and restore degraded ecosystems and promote the recovery of threatened species through the development and implementation of plans or other management strategies. Moreover, they must establish a system of protected areas or areas where special measures must be taken to conserve biological diversity.

203. The *International Convention for the Regulation of Whaling, 1946* sets out international regulations for the effective conservation and management of whales. The International Whaling Commission can establish "open and closed waters" and designate sanctuary areas. Commercial whaling is prohibited in a sanctuary; however, whaling for scientific research purposes is permitted.

204. The *Convention on Migratory Species (CMS)* requires its Contracting Parties to take, individually or in cooperation, appropriate and necessary steps to conserve migratory species and their habitats (for details see section VI.A.6 above).

205. Under *CITES*, trade in endangered species of wild fauna and flora is controlled and/or prevented when commercial demand threatens its overexploitation or extinction, as explained in section VI.A.6 above.

206. The *Global Programme of Action for the Protection of the Marine Environment from Land-based Activities* adopted in 1995, aims at preventing the degradation of the marine environment from land-based activities by assisting States in taking actions individually or jointly within their respective policies, priorities and resources, which will lead to the prevention, reduction, control and/or elimination of the degradation of the marine environment, as well as to its recovery from the impacts of land-based activities. Marine areas considered as vulnerable include: critical habitats, including coral reefs, wetlands, seagrass beds, coastal lagoons and mangrove forests; habitats of endangered species; ecosystem components, including spawning areas, nursery areas, feeding grounds and adult areas; shorelines; coastal watersheds; and estuaries.

207. The *Plan of Implementation of the World Summit on Sustainable Development*, adopted in September 2002, states that in order to promote the conservation and management of oceans, actions are needed at all levels to maintain the productivity

and biodiversity of important and vulnerable marine and coastal areas, including in areas within and beyond national jurisdiction. It recommends the implementation of the work programme arising from the Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biodiversity; the use of the ecosystem approach; the elimination of destructive fishing practices; time/area closures for the protection of nursery grounds and periods; proper coastal land use and watershed planning; the integration of marine and coastal areas management into key sectors; the establishment of marine protected areas consistent with international law and based on scientific information; the development of national, regional and international programmes for halting the loss of marine biodiversity, including in coral reefs and wetlands; and the implementation of the programme of action called for by the International Coral Reef Initiative for wetland ecosystems in coastal zones, including coral reefs, mangroves, seaweed beds and tidal mud flats."[24]

208. The *Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971 (Ramsar Convention)* requires a State Party to designate at least one wetland "within its territory" for inclusion in the List of Wetlands of International Importance.

209. The UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972 (World Heritage Convention)* provides for the establishment of a World Heritage List and a List of World Heritage in Danger with a view to protecting the cultural and natural heritage. A number of marine areas have been designated on the lists.

Instruments providing for the identification of areas where special protective measures apply

210. *UNCLOS* in paragraph 5 of article 194 does not specify what protective measures should be taken to meet the requirements of the article. It recognizes the need for special protective measures in certain marine areas in only three different contexts: conservation of living marine resources; exploitation of resources in the Area; and prevention, reduction and control of pollution from vessels.

211. *Prevention, reduction and control of pollution from vessels.* In article 211, paragraph 6, UNCLOS permits coastal States to take special measures, as adopted by IMO, to protect a defined area of the exclusive economic zone which, because of its oceanographical and ecological circumstances, as well as the conditions arising from the utilization or the protection of their resources and the particular character of its traffic, requires special mandatory measures more stringent than those offered by the generally accepted international rules and standards for the prevention, reduction and control of pollution of the marine environment from vessels. The coastal State can also adopt for the same area additional national laws and regulations relating to discharges and navigational practices, provided they are agreed to by the competent international organization. In the territorial sea, the coastal State may adopt any measure to protect an area from pollution so long as it is in conformity with the Convention, it does not have the practical effect of hampering innocent passage and does not apply to the design, construction, manning or equipment of foreign ships (articles 21, 22, 23).

212. *MARPOL 73/78* provides for the designation of "special areas" where the discharge of oil, noxious liquid substances and garbage (the substances listed in annexes I, II and V of MARPOL 73/78) is controlled more strictly than in the

generally applicable international standards. A "special area" is defined as "a sea area where for recognized technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by [oil, noxious liquid substances, or garbage, as applicable,] is required". Annex VI of MARPOL 73/78 uses the concept of special emissions areas called "sulphur oxide emissions control areas". Under the IMO Guidelines for the Designation of Special Areas under MARPOL 73/78, vulnerable marine and coastal ecosystems could qualify for increased protection in recognition of their ecological conditions either as: (a) areas of high natural productivity; (b) spawning, breeding and nursery areas for important marine species and areas representing migratory routes for seabirds and marine mammals; (c) rare or fragile ecosystems; or (d) critical habitats of marine resources.

213. *SOLAS and ship routeing and reporting*. Ship routeing and reporting systems are available under SOLAS and the IMO General Provisions on Ships' Routeing to protect environmentally sensitive areas and marine species. Routeing measures include the establishment of areas to be avoided, or no-anchoring areas to protect, such as coral reefs. A mandatory ship reporting system can be adopted by IMO to protect particular sensitive areas or species in the territorial sea or the exclusive economic zone.

214. Under the *IMO Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas, 2001* (IMO Assembly resolution A.927(22)), an area is designated as a particularly sensitive sea area when it needs special protection through action by IMO, it has significance for recognized ecological, socio-economic or scientific reasons, and it may be vulnerable to damage by international shipping activities. Candidate areas must meet at least one of three criteria: ecological; social, cultural and economic; or scientific and educational, and should be at risk from international shipping activities. Ecological criteria include: uniqueness or rarity, critical habit, dependency, diversity, productivity, presence of spawning or breeding grounds, and vulnerability. A determination as to whether an area is at risk from shipping activities involves a consideration of vessel traffic characteristics (types of maritime activities and vessels, volume of traffic and harmful substances carried) and natural factors (hydrographical, meteorological and oceanographic). Protective measures available through IMO include: (a) designation as a special area and/or as a SOx emission control area under MARPOL, special discharge restrictions on ships operating in a particularly sensitive sea area; (b) presence of ships' routeing and reporting systems near or in the area; and (c) other measures, such as compulsory pilotage schemes or vessel traffic management systems, aiming at protecting specific sea areas against environmental damage from ships.

(b) Regional instruments

UNEP regional seas programme

215. Most regions covered by the UNEP regional seas programme have adopted a framework convention on the protection of the marine environment, which includes an article providing for the establishment of specially protected areas. For example, both the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 1981, and the Convention for the Protection of the Natural Resources and Environment of the

South Pacific Region, 1986, require their Parties to take all appropriate measures, jointly or individually, including the establishment of specially protected areas to protect and preserve rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species or other marine life. In addition, some regional seas conventions contain specific protocols concerning specially protected areas.[125]

Other regions

216. The *Protocol on Environmental Protection to the Antarctic Treaty, 1991* in its annex IV prohibits practically all forms of pollution from ships in the entire Treaty area. Annex II provides special protection to species of native mammals, birds and plants designated "specially protected species" under appendix A to annex II. Annex V provides for the establishment of "Antarctic specially protected areas" and "Antarctic specially managed areas". The former may be established in any part of the Antarctic Treaty area, including the marine environment, to protect outstanding environmental, scientific, historic, aesthetic or wilderness values or scientific research.

217. The *Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992* provides for the designation of protected areas if an area meets the criteria set out in HELCOM recommendation 15/5, also taking into account the interests of fisheries and aquaculture. The criteria include areas with habitats of endemic, rare or threate .ed species and communities of fauna and flora; habitats of migratory species; nursery and spawning areas; and rare, unique or representative geological or geomorphological structure processes.

218. The *Convention for the Protection of the Marine Environment of the North-East Atlantic, 1992 (OSPAR Convention)* provides in its annex V for the development of protective and conservation measures related to specific areas, making use of the precautionary approach and other concepts such as, best environmental practice, best available techniques and clean technology. Parties are required to take the necessary measures to restore, where practicable, marine areas which have been adversely affected. The OSPAR Commission is to develop means, consistent with international law, for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to specific species or habitats.

5. Management approaches and tools to protect vulnerable marine and coastal ecosystems

(a) Integrated management approaches and land-based activities

219. The most effective approach to ensure the protection of vulnerable ecosystems is through the adoption of an integrated, multidisciplinary and multisectoral coastal and ocean management at the national level, as recommended in chapter 17 of Agenda 21 and by the Plan of Implementation of the World Summit for Social Development, as well as by the Consultative Process. It is also necessary to adopt an ecosystem-based management, providing a more holistic approach, which would focus on managing marine ecosystems as a whole rather than specific individual elements within them and to enable the development of a longer-term sustainable strategy.

220. The need for cross-sectoral, holistic management has been identified as a basic principle in the protection of the marine environment from land-based activities. States are encouraged to develop a national programme of action as a flexible management and policy framework tailored to their specific development policies, programmes and plans for the protection of the marine environment, including the protection of vulnerable marine ecosystems. A national programme of action should include a two-dimensional framework for actions supported by the administrative and management structures necessary for its implementation. Within the first dimension, management actions should aim at: (a) identifying and assessing the nature and severity of problems related to the affected or vulnerable ecosystems; (b) establishing priorities; (c) setting management objectives for priority problems; (d) identifying, evaluating and selecting strategies and measures; (e) developing criteria for evaluating the effectiveness of strategies and measures; and (f) ensuring the necessary programme support elements. In the second dimension, specific actions are recommended for specific categories of pollutant sources, such as sewage, persistent organic pollutants, radioactive substances, heavy metals, oils, nutrients, sediment mobilization, litter, and physical alterations and destruction of habitats.[126]

221. Because of the transboundary effects of marine pollution, cooperation among the States of a given region is essential to ensure the protection of fragile ecosystems. States are therefore encouraged to develop regional programmes of action for the protection of the marine environment from land-based activities. The UNEP regional seas programme and other regional seas programmes and organizations provide an integrated framework for identifying regional priorities and developing regional programmes of action. The important role of regional seas programmes was acknowledged by the *First Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities* (Montreal, November 2001).[127]

(b) Protection of vulnerable ecosystems from fishing-induced stress

222. The impact of fishing on the marine environment is an issue of global concern, particularly in relation to fragile marine and coastal ecosystems. Various gears and fishing methods have attracted attention for their potential impact on the environment, especially habitat damage. Gear and techniques have been modified to reduce possible impacts, including through the improvement of the selective performance of trawl gear to eliminate the by-catch of fish in shrimp fisheries.[128] Trawling has caused severe damage to coral reefs, although little is known about its long-term effects on such ecosystems. In an application of the precautionary approach, Norway in 1999 put into effect in its waters no-trawling areas where the risk of damage to deep-water coral reefs was high. In addition, the impact of trawling on the bottom habitat is being investigated in many countries.[129] A global project to reduce the environmental impacts of tropical shrimp trawling, focusing on 12 countries over the period 2002-2007, has been jointly approved by GEF and UNEP, for execution by FAO.

223. Pursuant to article 62 (4) of UNCLOS, coastal States must conserve the marine living resources within their exclusive economic zone using measures such as: regulating seasons and areas of fishing, the types, sizes and amount of gear and the types, sizes and number of fishing vessels that may be used; and fixing the age and size of fish and other species that may be caught. Some coastal States have established marine protected areas as a tool for managing fragile marine ecosystems.

(c) Establishment of marine protected areas

224. A marine protected area may be generally identified as a geographically defined area, which is designed and managed to achieve specific conservation objectives. FAO defines marine protected area as:

> "a protected marine intertidal or subtidal area, within territorial waters, exclusive economic zones or in the high seas, set aside by law or other effective means, together with its overlying water and associated flora, fauna, historical and cultural features. It provides degrees of preservation and protection for important marine biodiversity and resources; a particular habitat (e.g., a mangrove or a reef) or species, or sub-population (e.g., spawners or juveniles) depending on the degree of use permitted. The use of marine protected areas (for scientific, educational, recreational, extractive and other purposes, including fishing) is strictly regulated and could be prohibited."[130]

The IUCN Guidelines for Marine Protected Areas defines marine protected area as "any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment".[131] Marine protected areas are tools designed to reduce the pressure of human activities on coastal/marine ecosystems and resources by managing multiple human uses in a defined geographic area. They can help in conserving biodiversity by protecting habitats, and they increase productivity by providing safe havens for species under threat. They may also be used for long-term environmental monitoring studies and control sites for studying management techniques.[132]

225. The Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas of the Convention on Biological Diversity recognized many benefits of such areas relating to both conservation and the sustainable use of biological diversity, including protecting ecosystem structure, functioning and beauty; allowing recovery from past damage; improving fishery yields; and providing social and economic benefits to local communities and nations. Marine coastal and protected areas provide the best available strategy to ensure the effectiveness of integrated marine and coastal area management regimes, according to the report of the Expert Group.[133]

226. According to experts, marine protected areas have the potential to conserve entire ecosystems that are unique, particularly rich in species or representative of biogeographical units. They may help maintain ecosystem productivity through safeguarding essential ecological processes by controlling activities that disrupt them or that physically damage the environment. They can also contribute to the replenishment of threatened marine resources through the creation of "no-fish zones", such as "no-take zones" or sanctuaries. In this respect, they serve to safeguard breeding sanctuaries from which individuals of a species may disperse to stock exploited areas. Other protection-related applications may include safeguarding recognized nursery areas for juvenile fish.[134]

227. Of these marine protected areas, marine reserves are the most frequently described in the scientific and marine management literature and have been established along many different coastlines around the world. In fully protected marine reserves, no extractive use of any resource or any habitat destruction is allowed. Others with less comprehensive levels of protection from extraction, such

as seasonal closures, bans on taking reproductive individuals and catch limits, are common in marine habitats.[135] The study of more than 100 reserves shows that reserves usually augment the population numbers and individual size of overexploited species. They are generally believed to provide protection from the major consequences of overfishing in three ways. First, they protect individual species of commercial or recreational importance from harvest inside marine reserve boundaries. Secondly, they reduce habitat damage caused by fishing practices that alter biological structures, such as oyster reefs, necessary to maintain marine ecosystems. Thirdly, they provide protection from ecosystem overfishing, in which the removal of ecologically pivotal species throws an ecosystem out of balance and alters its diversity and productivity.[136] Over the past 30 years, marine reserves have been established along coral reefs, temperate shores, estuaries, mangroves and many other habitats.[137] Marine reserves are particularly effective in situations where biological habitats are severely disrupted by overfishing and where local populations of fish species rely on these habitats. Small reserves can function as important conservation tools and benefit local fisheries if they are intended to protect critical habitats, such as nursery grounds or spawning aggregations. To broadly enhance regional ecosystems, reserves need to be implemented densely enough to substantially contribute to species diversity and recruitment outside their borders.[138] Sufficient monitoring and enforcement are also essential to the effectiveness of these marine protected areas.[139]

(d) Ecosystem approach to fisheries management

228. On the high seas, many regional fisheries management organizations and arrangements have become aware of the importance of critical habitats to the long-term sustainability of the fishery resources under their management. A number of them have adopted an ecosystem approach to fisheries management and have recognized that an important part of an ecosystem approach to fisheries management is the protection of fish habitats from fishing activity that has the potential to make such habitats less suitable. To protect these habitats, there may be a need to impose area-time restrictions on fishing, or prohibitions of fishing activity from areas identified as essential fish habitats.

229. Newly established regional fisheries management organizations such as the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, the South-East Atlantic Fisheries Commission and the South-West Indian Ocean Fisheries Commission have included in their respective conventions the principles of an ecosystem-based fisheries management, including the obligation to ensure that fishery practices and management measures take due account of the need to minimize harmful impacts on living marine resources as a whole. These conventions also call for the application of the precautionary approach in fisheries management.[140] In addition, CCAMLR, which has been a pioneer in the implementation of ecosystem-based fisheries management, approved at its most recent annual meeting in 2002 four management plans for Antarctic specially protected areas with marine components, following the entry into force on 24 May 2002 of annex V to the Protocol on Environmental Protection under the Antarctic Treaty. Three of those sites had already been afforded protection as sites of special scientific interest under the Treaty.[141]

230. In order to protect high seas marine living resources, some NGOs have recently suggested that the General Assembly adopt a resolution imposing a global

moratorium on fishing around high seas seamounts to prevent the further loss of biodiversity in deep sea areas pending the negotiation of a regime for the conservation of these fragile ecosystems. They consider such preventative action to be in conformity with concerns raised by marine scientists and the application of the precautionary approach to fisheries.[142] The suggestion was inspired by the global moratorium on all large-scale pelagic high seas drift-net fishing established by the General Assembly in its resolution 46/215 of 20 December 1991. In order to address this issue, FAO has already initiated work for developing sustainable fisheries on deep-sea resources. In this connection, FAO in cooperation with the Governments of Australia and New Zealand, will hold an International Conference on the Governance and Management of Deep Sea Fisheries in Queenstown, New Zealand, from 1 to 4 December 2003.

231. In addition, FAO indicates that, as a follow-up to the issues raised in the 2001 Declaration of the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem, it has initiated actions aimed at protecting vulnerable ecosystems, including: (i) the convening of an Expert Consultation on Ecosystem-based Fisheries Management in Reykjavik, from 16 to 19 September 2002, at which preliminary guidelines were developed for an ecosystem approach to fisheries management focusing on fisheries management; (ii) the sponsoring and participation of the FAO Fisheries Department in a Working Group on Ecosystem Indicators for Fisheries Management of the Scientific Committee for Oceanic Research of UNESCO, the work results of which would be complementing work already done by FAO and might contribute to future updates of the FAO preliminary guidelines on the ecosystem approach; (iii) the launching of a new project in October 2002 called "The scientific basis for ecosystem-based management in the Lesser Antilles, including interactions with marine mammals and other top predators", aimed at facilitating the implementation of the ecosystem approach within the participating countries and the subregion to ensure the maintenance of the integrity of the pelagic ecosystem, marine resources and fish production, through sustainable and responsible fisheries conduct.[143]

(e) Protection of coral reefs

232. In 1999, .he International Coral Reef Initiative (ICRI) recognized the need for the coordination of research and management efforts across all relevant institutions for the implementation of its urgent recommendations for saving the world's reefs. It established the International Coral Reef Action Network (ICRAN) to halt and reverse the decline in the health of the world's coral reefs. ICRAN is an innovative and dynamic global partnership of many of the world's leading coral reef science and conservation organizations. It draws on partners' investments in reef monitoring and management to create strategically linked actions across local, national and global scales. ICRAN is the first partnership to respond to conservation needs on a global scale by recognizing both traditional and scientific perspectives of coral reef dynamics and the respective social dependencies.

233. The guide "Good Practices for the Protection and Management of Coral Reefs"[144] recognizes that "good practice" may take the form of practical activities on the ground, measures that promote social participation, instruments of an economic, legal or institutional nature, or innovative and effective techniques that contribute significantly to coral reef protection and management and to sustainable development in adjacent coastal areas. Examples of good practice provided in the

guide include: resource management (fisheries management, protection of fish stocks, community-based management); integrated coastal zone management; protected marine areas; tourism and protected marine areas (planning, development and tourist activities); controlling pollution and environmental degradation (erosion and sedimentation control in catchment basins, control of industrial and urban pollution, prevention of beach erosion and restoration of coral reefs); re-stocking and restoration of coral reefs (re-stocking of coral reef populations, restoration and rehabilitation of degraded coral reefs through coral transplants).

234. The Global Environment Facility finances actions within the framework of sustainable development, including in the context of the degradation of international waters. Through its international waters focal area it assists recipient nations in addressing concerns of transboundary water bodies. Thirty-two GEF international waters projects were launched between 1991 and 2002 to address the protection of vulnerable marine ecosystems.

6. Initiatives at the regional level[43]

235. Chapter 17 of Agenda 21 characterized small island developing States as a special case both with regard to environment and development, and as being ecologically fragile and vulnerable. According to the Barbados Programme of Action, many small island developing States are entirely or predominantly coastal entities. Furthermore, due to the small size, isolation and fragility of island ecosystems, their renowned biological diversity is among the most threatened in the world. Their geographic isolation has resulted in their habitation by comparatively large numbers of unique species of flora and fauna. More recently, the World Summit for Social Development, in the Johannesburg Declaration on Sustainable Development, reaffirmed its commitment to continue to pay special attention to the developmental needs of small island developing States.

236. The General Assembly has also recognized the vulnerability of small island developing States. In its resolution 57/261 of 20 December 2002, entitled "Promoting an integrated management approach to the Caribbean Sea area in the context of sustainable development", the Assembly recognized that the Caribbean Sea has a unique biodiversity and highly fragile ecosystem and called upon the United Nations system and the international community to assist Caribbean countries and their regional organizations in their efforts to ensure the protection of the Caribbean Sea from degradation as a result of pollution from ships, in particular through the illegal release of oil and other harmful substances, and from illegal dumping or accidental release of hazardous waste, including radioactive materials, nuclear waste and dangerous chemicals, in violation of relevant international rules and standards, as well as pollution from land-based activities. The Assembly also called on States, taking into consideration the Convention on Biological Diversity, to develop national, regional and international programmes for halting the loss of marine biodiversity in the Caribbean Sea, in particular fragile ecosystems, such as coral reefs.

237. The establishment of the Caribbean Regional Fisheries Mechanism is a recent example of a regional attempt to sustainably manage the region's fisheries resources. Furthermore, the Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region ventures beyond protection and management by providing

for the restoration and improvement of the state of ecosystems. Other developments in the Caribbean region include the International Coral Reef Initiative Regional Workshop for the Tropical Americas, held in Mexico in June 2002. Marine protected areas was one of the main themes addressed in the workshop.

7. Further measures

238. As this survey of existing instruments demonstrates, there already exists a broad range of rules, measures and management tools to protect vulnerable marine ecosystems. One gap is the lack of a regime for the protection of hydrothermal vents in the Area. However, a recent report by the Division for Ocean Affairs and the Law of the Sea and the Convention on Biological Diversity secretariat addresses this issue. One might also envisage a new code of conduct for scientists to elaborate upon the general principles set out in article 240 of UNCLOS. Most important, however, is the implementation of existing rules and programmes. States wishing to protect vulnerable marine ecosystems should become parties to the relevant conventions and should apply them and the relevant action plans and programmes to vulnerable ecosystems within their jurisdiction and to their nationals and ships flying their flag in areas beyond the limits of national jurisdiction. Finally, they should ensure that these measures are effectively enforced under their national law.

VII. International cooperation and coordination

A. United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

239. At its fifty-seventh session, in accordance with paragraph 4 of its resolution 54/33 of 24 November 1999, the General Assembly considered whether the Consultative Process should be continued. After reviewing the work of the Process over the past three years and noting its contribution to strengthening its annual debate on oceans and the law of the sea, the Assembly decided to continue the Consultative Process for an additional three years. Substantive secretariat support will continue to be provided by the Division for Ocean Affairs and the Law of the Sea and the Division for Sustainable Development of the Department of Economic and Social Affairs.

240. The fourth meeting of the Consultative Process will be held at United Nations Headquarters in New York from 2 to 6 June 2003, with discussions focused around the following areas: (a) protecting vulnerable marine ecosystems; and (b) safety of navigation, for example, capacity-building for the production of nautical charts; as well as issues discussed at previous meetings. In February 2003, the President of the General Assembly appointed H.E. Mr. Felipe Paolillo (Uruguay) and Mr. Philip Burgess (Australia) as co-chairpersons of the fourth meeting.

B. General mechanism for inter-agency cooperation on oceans and the law of the sea

241. In 2001, the Secretary-General decided to abolish the Subcommittee on Oceans and Coastal Areas (SOCA), which had been a mechanism for inter-agency cooperation on sustainable development for the oceans established following

UNCED. The Subcommittee was replaced by a policy of using ad hoc inter-agency task forces devoted to particular issues for limited periods of time. Concerned that inter-agency cooperation would decrease in the absence of a general forum for cooperation, in 2002, first at the Consultative Process and then at the General Assembly (resolution 57/141), Member States called for the creation of a new general mechanism for inter-agency cooperation and coordination that would be effective, regular and transparent. At the time of writing, the High Level Committee on Programmes is actively involved in consultations with all United Nations bodies concerning the possibility of establishing such a mechanism.

242. Since SOCA was abolished because it was not effective, recreating a similar entity would probably not be helpful. It would be preferable to use an existing structure within the United Nations, such as the United Nations System Chief Executives Board for Coordination and the High Level Committee on Programmes for the general oversight of inter-agency cooperation, without interfering in substantive operations. Any mechanism should be regular, effective, flexible and transparent.

C. Specific issues

1. The *Prestige* task force

243. In the wake of the *Prestige* disaster, the World Wide Fund for Nature, Greenpeace International and the International Transport Workers' Federation wrote to the Secretary-General, expressing concern about the environmental and social consequences of the oil spill and requesting that he form a "task force" of relevant international bodies to examine the root causes of the problem. In their view, those causes related to the failure of certain flag States, in particular open registries, to fulfil their obligations under UNCLOS. In addition, they called for the revision of the 1986 United Nations Convention on the Conditions for the Registration of Ships to strengthen the requirement for a "genuine link" between flag States and the ships that they register. In response, the Division for Ocean Affairs and the Law of the Sea, on behalf of the Secretary-General, is currently engaged in consultations with other international bodies within and outside the United Nations system to ascertain their views on the establishment of such a task force.

2. Global marine assessment

244. The process of establishing a global marine assessment was initiated by the UNEP Governing Council at its twenty-first session in February 2001, with the adoption of Council decision 21/13, entitled "Global assessment of the state of the marine environment". In September 2001, UNEP convened an informal consultative meeting in Reykjavik at which participants agreed that a global assessment of the marine environment (GMA) was both desirable and urgently needed. It recommended that the GMA process should be aimed at policy makers; be based on a scientific assessment of the global marine environment and an assessment of the socio-economic implications; and that it should provide policy makers with guidance and assistance on actions required to mitigate environmental impacts and changes. It was strongly recommended that the assessment build upon existing assessments and it was suggested that a reformed GESAMP, provided with adequate funding, might be the best option for a coordination mechanism fulfilling four main

criteria: cost-effectiveness, credibility, sustainability, and the ability to address policy issues.[146]

245. A technical workshop to further elaborate the key objectives and define the practical framework for developing a GMA process was hosted by the German Government in Bremen in March 2002. It confirmed that the main goals were to provide on a regular, timely and scientific basis the necessary assessments of the state and trends of all aspects of marine ecosystems. The coordination mechanism should ensure legitimacy, credibility, saliency, cost-effectiveness, efficiency and sustainability. The expected outputs of the GMA should be subject to a transparent peer review and reported in a "two-tier" format, consisting of a scientific/technical report and a policy-oriented report based on the same information.[147]

246. In April 2002, the Consultative Process reiterated these conclusions.[148] Subsequently, the World Summit for Social Development in the Johannesburg Plan of Implementation called for the establishment by 2004 of a regular process under the United Nations for global reporting and assessment of the state of the marine environment. Finally, the General Assembly, in its resolution 57/141, endorsed the recommendation of the World Summit and requested the Secretary-General to consult all interested parties, to prepare proposals on modalities for the global assessment and to submit such proposals to the General Assembly at its fifty-eighth session for its consideration and decision.

VIII. Conclusions

247. It has become increasingly evident that the adoption of UNCLOS 20 years ago was just the beginning of the road towards the resolution of ocean-related issues. Indeed, since that time, problems have increased. This is despite the impressive array of legislation adopted in all fields under the auspices of the substantial number of organizations dealing with ocean-related matters. In 2002, developments in ocean affairs since 1982 and 1992 were reassessed at the World Summit for Social Development, and the conclusion was that further action was urgently required. The main problems today are the overexploitation of fisheries and destructive fishing practices; the degradation of the marine environment; and the increase in ship-related accidents and crimes.

248. In order to remedy this situation, it would appear necessary for all States:

- **To ratify or accede to UNCLOS and its implementing agreements;**
- **To ratify or accede to the many other agreements giving substance and details to the basic principles of the Convention;**
- **To implement these agreements in their national laws and administrative structures;**
- **To actively apply and enforce those laws and regulations.**

249. At the root of far too many of these problems is the unwillingness or lack of capacity of certain States, especially flag States, to fulfil their international legal obligations. It is essential to reinforce the control of flag States over their vessels. Indeed, it might now be time to engage in defining the crucial term "genuine link" to ensure that States do not register any vessels unless they have

a truly effective means of enforcing upon them all the relevant international rules and standards.

250. **In addition to ineffective implementation and compliance, a second striking theme in the report is the call for enhanced cooperation among international organizations involved in law of the sea issues. As the international community grows increasingly interdependent, as developments in ocean affairs continue to expand in number and in complexity, and as problems proliferate, so cooperation and coordination among States, organizations and other actors will become more important. Hence, in order to strengthen inter-agency cooperation on an ever-expanding range of issues, a mechanism has been envisaged to enhance and facilitate inter-agency cooperation and coordination. The mechanism should:**

- **Discharge two main functions: first, the review of ongoing ocean-related work in each agency, fund and programme, in order to identify issues where cooperation is required and to eliminate duplication; second, to prepare coordinated responses to emerging challenges or urgent issues;**
- **Work within the United Nations established structures, i.e., the United Nations System Chief Executives Board for Coordination and the High Level Committee on Programmes, which could exercise oversight without interfering with substantive cooperation;**
- **Be flexible and transparent.**

251. **The challenge for the future, therefore, is twofold: to ensure that States comply fully with their obligations under the law of the sea, and that inter-agency cooperation is facilitated and enhanced.**

Notes

[1] The Division for Ocean Affairs and the Law of the Sea is preparing a special publication on the commemoration, to be issued in 2003.

[2] General Assembly resolution 56/12, para. 48.

[3] For details, see A/57/57, paras. 497-511.

[4] Ibid., paras. 502-508.

[5] A/57/80, para. 26.

[6] For details, see A/57/57/Add.1, paras. 75-85.

[7] The thirteenth Meeting of States Parties to UNCLOS will be held from 9 to 13 June 2003 at United Nations Headquarters. Information regarding the thirteenth Meeting will be included in the addendum to the present report.

[8] Full texts of declarations upon ratification, accession or formal confirmation are available at the web site of the Division for Ocean Affairs and the Law of the Sea of the United Nations Office of Legal Affairs (www.un.org/Depts/los) as well as that of the Treaty Section (www.un.org/Depts/Treaty).

[9] More detailed information regarding the session can be found in the addendum to the report of the Secretary-General (A/57/57/Add.1, paras. 22-56), as well as in the statement of the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission, at the eleventh session (CLCS/34). Additional information regarding the work of the Commission can also be found in the recent annual reports of the Secretary-General.

(A/57/57, paras. 53-77; A/56/58, paras. 52-82, and A/56/58/Add.1, paras. 19, 30-49; A/55/61, paras. 25-29; A/54/429, paras. 55-69; A/53/456, paras. 55-69; and A/52/487, paras. 43-53), as well as in the report of the twelfth Meeting of States Parties (SPLOS/91, paras. 95-101).

[10] For information regarding the establishment and purposes of the Fund, as well as how developing States may apply for a grant therefrom, see A/57/57/Add.1, paras. 46-50.

[11] The papers presented at the seminar have been published by the Authority as a technical study.

[12] See report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, ISBA/8/A/5 and Add.1.

[13] Estimates vary depending on the interpretation of national constitutional provisions and or relevant legislation.

[14] The following agreements have been concluded in Africa: Agreement on the Delimitation of the Maritime Border between the Gabonese Republic and the Democratic Republic of Sao Tome and Principe, 26 April 2001; Treaty between the Federal Republic of Nigeria and the Democratic Republic of Sao Tome and Principe on the Joint Development of Petroleum and other Resources, in respect of Areas of the Exclusive Economic Zone of the Two States of 21 February 2001; Agreement between the Government of the United Republic of Tanzania and the Government of the Republic of Seychelles on the Delimitation of the Maritime Boundary of the Exclusive Economic Zone and the Continental Shelf of 23 January 2002. It has been reported that Nigeria and Equatorial Guinea signed on 3 April 2002 a treaty on joint exploration of crude oil, especially at the Zafiro-Ekanga Oil Field located at the maritime boundary of both countries. On 4 June 2002 Angola and Namibia signed an accord on the delimitation of the maritime border between the two countries. In Asia and South Pacific, the following agreements have been concluded: Muscat Agreement on the Delimitation of the Maritime Boundary between the Sultanate of Oman and the Islamic Republic of Pakistan of 12 June 2000; and International Boundary Treaty between the Republic of Yemen and the Kingdom of Saudi Arabia of 12 June 2000.

[15] Message from the Secretary-General of IMO on World Maritime Day 2002.

[16] MEPC 48/21, paras. 12.2.1-12.2.2.

[17] Ibid., annex 3.

[18] On 1 January 2002, the world fleet amounted to 825.7 million dead weight tonnage, a 2.1 per cent increase over 2001. New-building deliveries represented 45.2 million dwt, while scrapped or lost vessel tonnage reached 27.9 mdwt, representing a net increase of 17.3 mdwt. The average age of tankers shrank from 13.9 years to 13.2 years, but the proportion of tankers over 15 years old is still high, at 42.7 per cent.

[19] International Chamber of Shipping (ICS) Annual Review 2001/2002.

[20] The amendments to SOLAS chapters II and XII were adopted in resolution MSC.133(76). For the text, see report of the Maritime Safety Committee on its 76th session, MSC 76/23, annex 2.

[21] For a list of confirmed parties, see IMO circular MSC/Circ.1066.

[22] Baltic and International Maritime Council/International Shipping Federation manpower update: *The world demand for and supply of seafarers*, Institute for Employment Research (University of Warwick, United Kingdom, 2000).

[23] See IMO document LEG 85/10 and the report of the IMO Legal Committee on its 85th session, LEG 85/11, paras. 144-156.

[24] Seafarers, shipowners and government representatives participated in the meeting.

[25] Final report of the Meeting of Experts on Working and Living Conditions of Seafarers on board Ships in International Registers. ILO document MEWLCS/2002/8, available on the web site of ILO at www.ilo.org/public/english/dialogue/sector/sectors/mariti/shipping-iloact.htm.

[26] See Focus on IMO — IMO and Dangerous Goods at Sea (1996).

[37] International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), Code for Safe Practice for Solid Bulk Cargoes (BC Code), and Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Waste in Flasks on Board Ships (INF Code). SOLAS chapter VII now provides for the mandatory application of all codes, except the BCH Code. The latter is mandatory under MARPOL 73/78, together with the IBC Code.

[38] For the text of the resolutions, see the report of MSC on its 75th session, MSC 75/24/Add.1 (annexes 2 and 12). The text of the revised IMDG Code is contained in document DSC 5/13/Add.1.

[39] See IMO document LC/SG 25/11, annex 4.

[40] See Nadi Declaration, adopted at the third Summit of ACP Heads of State and Government, Nadi, Fiji, 18 and 19 July 2002, ACP/28/029/02 [Final], available at www.acp.fiji.gov.fj/Nadi_Declaration.pdf.

[41] Thirty-third Pacific Islands Forum Communiqué, A/57/331, annex.

[42] *RNE Radio 1*, Madrid, 28 November 2002.

[43] Report of MSC on its 76th session, MSC 76/23, para. 1.27.

[44] See generally ibid., paras. 1.13-1.28.

[45] See also press package, dated 8 January 2003, issued by the European Commission Directorate General for Energy and Transport.

[46] MSC 76/23, para. 11.41.

[47] For details and a complete listing of adopted traffic separation schemes, see reports of MSC on its 75th and 76th sessions, MSC 75/24, annex 6, and MSC 76/23, annex 10.

[48] Directive 2002/59/EC of 27 June 2002.

[49] Declaration on the Safety of Navigation and Emergency Capacity in the Baltic Sea Area, adopted on 10 September 2001.

[50] See IMO document MSC 77/23/5.

[51] Relevant IHO publications include: M-1, Basic Documents of the IHO; M-2, National Maritime Policies and Hydrographic Services; P-7, Annual Report for 2001 — Part 1; S-47, Training Courses in Hydrography and Nautical Cartography; S-57, IHO Transfer Standard for Digital Hydrographic Data; M-5, Standards for Hydrographic Surveyors; and M-8, Standards for Nautical Cartographers.

[52] Greece has the largest fleet, with 19.6 per cent of world tonnage, followed by Japan, Norway, the United States and China. Major open-registry countries, such as Panama, Liberia, the Bahamas, Malta and Cyprus, have increased the tonnage of vessels flying their flag by 2.6 per cent, to a 48.7 per cent world share.

[53] ICS Annual Review 2001/2002.

[54] See submission to the IMO Legal Committee by the International Confederation of Free Trade Unions, LEG 84/13/5.

[55] Joint Declaration emanating from the Franco-Spanish summit, Malaga, Spain, 26 November 2002.

[56] The European Union Council of Transport Ministers expressed its support for a compulsory audit at its meeting in December 2002.

[57] For further information on the ICAO oversight programme, see ICAO document C 89/13/Add.1.

[48] Submission by Canada, Denmark, Finland, the Netherlands, New Zealand, Portugal and Spain, IMO document FSI 10/12/1.

[49] Report of the Subcommittee on Flag State Implementation at its 10th session, April 2002, FSI 10/17, paras. 12.4-12.8.

[50] Joint Declaration, Franco-Spanish summit, Malaga, Spain, 26 November 2002. See also statement by Spain to the General Assembly at its fifty-seventh session during its consideration of the agenda item entitled "Oceans and the law of the sea" (A/57/PV.74).

[51] European Commission press release IP/02/1791, 3 December 2002.

[52] Report-record of decisions on the United Nations Inter-Agency Meeting on the Treatment of Persons Rescued at Sea, Geneva, 2 and 3 July 2002, IMO document MSC 76/22/8.

[53] For a summary of discussions at the expert round table, see IMO document MSC 76/22/8, annex.

[54] For the text of the draft amendments, see document FAL 30/9/Add.2.

[55] General Assembly resolution A/57/145, para. 2.

[56] For example, see the Joint Declaration of the 6th ASEAN-China Summit, Cambodia, 4 November 2002, on the web site of ASEAN.

[57] General Assembly resolution A/57/27, para. 6.

[58] See General Assembly resolution A/57/219, para. 1.

[59] *The New York Times*, 19 October 2002.

[60] Ibid., 26 January 2003.

[61] IMO documents SOLAS/CONF.5/32 and SOLAS/CONF.5/34.

[62] General Assembly resolution 57/141, para. 28.

[63] Report of MSC on its 76th session, MSC 76/23, para. 16.6.

[64] Extracted from a report by a Spanish newspaper on the *ABC* web site, Madrid, 4 January 2003.

[65] *BBC News*, 28 January 2003.

[66] Ibid., 13 January 2003.

[67] Ibid., 28 January 2003.

[68] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, para. 30.

[69] Ibid., resolution 1, annex.

[70] Ibid., resolution 2, annex.

[71] See General Assembly resolution 55/2.

[72] *Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados, 25 April-6 May 1994* (United Nations publication, Sales No. E.94.I.18 and corrigenda), chap. I, resolution 1, annex II.

[73] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, paras. 31 (b)-(d) and 32 (b).

[74] General Assembly resolution 57/143, para. 15.

[75] Ibid., paras. 13 and 19.

[76] Contribution of FAO to the report of the Secretary-General to the fourth meeting of the Informal Consultative Process and the General Assembly at its fifty-eighth session, January 2003.

[77] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, para. 31 (d) and (f).

[78] Such instruments include the 1992 UNCED Rio Declaration on Environment and Development and Agenda 21; the 1993 FAO Compliance Agreement; the 1995 United Nations Fish Stocks Agreement; the 1995 Code of Conduct for Responsible Fisheries and related international programmes of action; the 1995 Rome Consensus on World Fisheries; the 1995 Kyoto Declaration and Plan of Action on the Sustainable Contribution of Fisheries to Food Security; and the 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem.

[79] Report of the 22nd session of COFI, Rome, 17-20 March 1997, FAO Fisheries Report No. 562 (FIPL/R562 (En)), paras. 31 and 32.

[80] Report of the Meeting of FAO and non-FAO Regional Fishery Bodies or Arrangements, Rome, 11-12 February 1999, FAO Fisheries Report No. 597 (FIPL/R597).

[81] Report of the Meeting of FAO and non-FAO Regional Fishery Bodies or Arrangements, Rome, 20-21 February 2001, FAO Fisheries Report No. 645 (FIPL/R645).

[82] The following intergovernmental organizations attended: APEC, ASEAN, CARICOM, FAO, OECD, SADC, WTO and UNEP.

[83] Report of the Second Ad hoc Meeting of Intergovernmental Organizations on Work Programmes Related to Subsidies in Fisheries (Rome, 4-5 July 2002).

[84] FAO, *The State of World Fisheries and Aquaculture 2002* (SOFIA), part three. In press.

[85] COFI/2003/INF.12.

[86] Report of the Norway-FAO Expert Consultation on the Management of Shared Fish Stocks, Bergen, Norway, 7-10 October 2002. FAO Fisheries Report No. 695 (Rome, FAO, 2002). 34p. The report will be published in the five FAO official languages.

[87] Source: *United Nations Atlas of the Oceans*.

[88] Guide to the Convention on the Conservation of Migratory Species and Wild Animals, January 2002, www.unep-wcmc.org/cms.

[89] The report is produced by the Global Coral Reef Monitoring Network and is co-sponsored by partners of the International Coral Reef Initiative and the International Coral Reef Action Network. See www.aims.gov.au/pages/research/coral-bleaching/scr2002/scr-00.html.

[90] See text prepared during the 48th session of MEPC (7-11 October 2002), IMO document MEPC 48/21, annex 2.

[91] Joint IMO/UNEP Forum on Regional Arrangements for Cooperation in Combating Marine Pollution Incidents, London, September/October 2002.

[92] LC/SG 25/11, annex 4.

[93] LC/SG 25/11, annex 4.

[94] Report of the Conference of the Parties to the Basel Convention, UNEP/CHW.6/40, annex.

[95] UNEP/CHW.6/23, annex.

[96] UNEP/CHW/LWG/5/4, annex.

[97] IMO resolution A.927 (22), 15 January 2002.

[98] "A Sea of Troubles", GESAMP Reports and Studies No. 70 (Nairobi, UNEP, 2001).

[99] K. Kathiresan and B. L. Bingham, "Biology of mangroves and mangrove ecosystems", *Advances in marine biology*, vol. 40 (2001), p. 5.

[100] Ibid., p. 54.

[101] Ibid., pp. 36-37.

[102] R. V. Salm, J. R. Clark and E. Siirila, *Marine and Coastal Protected Areas: A Guide for Planners and Managers*, Gland, Switzerland, International Union for the Conservation of Nature and Natural Resources (IUCN), 2000, pp. 161-164.

[103] M. Gianni, "Protecting the biodiversity of seamount ecosystems in the deep sea: the case for a global agreement for marine reserves on the high seas", Discussion paper prepared for the IUCN/World Wildlife Fund (WWF) High Sea Marine Protected Areas Workshop, 15-17 January 2003, Malaga, Spain, p. 2.

[104] UNCLOS, article 234.

[105] GESAMP, op. cit., note 98.

[106] Ibid.

[107] FAO, "Marine fisheries and the law of the sea: a decade of change", special chapter (revised) of The State of Food and Agriculture 1992, FAO Fisheries Circular No. 853 (FIDL/C853), Rome, FAO, Fisheries Department, 1993, p. 30.

[108] Ibid.

[109] K. Kathiresan and B. L. Bingham, op. cit., note 99, pp. 58-74.

[110] R.V. Salm, J. R. Clark and E. Siirila, op. cit., note 102, pp. 166-193.

[111] Ibid.

[112] FAO, op. cit., note 107.

[113] Ibid.

[114] M. Gianni, op. cit., p. 2.

[115] IMO resolution A.927 (22), annex 2, paras. 2.1 and 2.2.

[116] *The status of natural resources on the high seas* (Gland, Switzerland, WWF/IUCN, 2001).

[117] Lyle Glowka, "Putting marine scientific research on a sustainable footing at hydrothermal vents", draft article submitted for publication to *Marine Policy*; advance copy provided by author.

[118] See report of InterRidge Workshop, Institute of Ocean Sciences, Sydney (Victoria), Canada, 28-30 September 2000.

[119] *The New Zealand Herald*, 31 December 2002.

[120] Amy Mathews-Amos and Ewann A. Berntson, "Climate change harms ocean life", *Earth Island Journal*, fall 1999, p. 20.

[121] *The New Zealand Herald*, op. cit., note 119.

[122] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I; *Resolutions adopted by the Conference*, resolution 1, annex II, paras. 17.6 (h) and 17.7.

[123] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, *International Fisheries Instruments with Index* (United Nations publication, Sales No. E.98.V.11), sect. 1; see also A/CONF.164/37.

[124] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, para. 32 (a).

[125] *The Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, 1985* requires its Parties to take all appropriate measures to, inter alia, protect and preserve rare or fragile ecosystems as well as rare, depleted, threatened or endangered species and their habitats and to establish protected areas in areas under their jurisdiction where necessary, along with taking all appropriate measures to protect such areas.

The Protocol for the Conservation and Management of Protected Marine and Coastal Areas of the South-East Pacific, 1989 authorizes the establishment of parks, reserves and sanctuaries to protect and preserve fragile or unique cultural and natural resources and ecosystems, with a particular emphasis on flora and fauna threatened by depletion or extinction. It prohibits any activity liable to have adverse effects on the ecosystem, flora, fauna or habitat.

The Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region, 1990 provides for the establishment of protected areas in order to conserve, maintain and restore, inter alia, habitats and associated ecosystems critical to the survival and recovery of endangered, threatened or endemic species of flora and fauna.

The Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean, 1995 is applicable to all marine waters of the Mediterranean, irrespective of their legal status, as well as to the seabed and its subsoil, and to such terrestrial coastal areas as are designated by each party, including wetlands. It provides for the establishment of "specially protected areas" and "specially protected areas of Mediterranean importance" in the marine and coastal zones in order to promote cooperation in the management and conservation of natural areas, as well as in the protection of threatened species and their habitats.

[126] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, www.gpa.unep.org.

[127] Report of the First Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Montreal, Canada, 26-30 November 2001, Montreal Declaration on the Protection of the Marine Environment from Land-based Activities, UNEP/GPA/IGR.1/9, annex I, para. 9 (a) and (c).

[128] *The State of the World Fisheries and Aquaculture 2000* (Rome, FAO Fisheries Department, 2000), pp. 13-15.

[129] Ibid.

[130] FAO Fisheries Department, Glossary, www.fao.org/fi/glossary.

[131] G. Kelleher, *Guidelines for Marine Protected Areas* (Gland, Switzerland, and Cambridge, United Kingdom, IUCN, 1999), pp. xi-xii.

[132] L. A. Kimball, *International ocean governance: using international law and organizations to manage marine resources sustainably* (Gland, Switzerland, and Cambridge, United Kingdom, IUCN, 2001).

[133] UNEP/CBD/SBSTTA/8/9, Add.1.

[134] R. V. Salm, J. R. Clark and E. Siirila, op. cit., note 102, pp. 23-24 and 29.

[135] Ibid.

[136] Ibid., Abstract.

[137] Stephen R. Palumbi, "Marine reserves, a tool for ecosystem management and conservation", paper prepared for the Pew Oceans Commission, Stanford University, Stanford, California, 2002, p. 2.

[138] Ibid., p. 34.

[139] Ibid., p. 35.

[140] Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific, article 5 (c)-(f); Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean, article 3 (b)-(f); Agreement for the Establishment of a South-West Indian Ocean Fisheries Commission, article 6 (1), (2) and (4).

[141] Twenty-first meeting of CCAMLR, Hobart, Tasmania, Australia, 21 October-1 November 2002.

[142] M. Gianni, op. cit., note 103, pp. 1-7.

[143] Contribution of FAO to the report of the Secretary-General.

[144] "Good Practices for the Protection and Management of Coral Reefs" was produced for ICRI by the Centre de documentation, de recherche et d'expérimentations sur les pollutions accidentelles des eaux (CEDRE) with the support of the French Ministry of Spatial Planning and the Environment.

[145] As space does not permit a full exposition of regional initiatives, only one example of small island developing states in the Caribbean is given. Other examples may be found in document A/57/57.

[146] Proceedings of the first feasibility study for establishing a regular process for the assessment of the state of the marine environment, Reykjavik, 12-14 September 2001.

[147] Proceedings of the technical workshop for establishing a regular process for the global assessment of the marine environment, Bremen (Germany), 18-20 March 2002.

[148] See third meeting of the Consultative Process, "Summary of discussions, Panels A and B", available in English at www.un.org/Depts/los/consultative_process/consultative_process.htm.